Vocabulary Instruction for the Development of American Sign Language in Deaf Children: An Investigation into Teacher Knowledge and Practice

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VOCABULARY INSTRUCTION FOR THE DEVELOPMENT OF AMERICAN SIGN LANGUAGE IN DEAF CHILDREN: AN INVESTIGATION INTO TEACHER KNOWLEDGE AND PRACTICE

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ABSTRACT

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The acquisition of vocabulary is an important aspect of young children's development that may impact their later literacy skills (National Reading Panel, 2000; Cunningham & Stanovitch, 1997). Deaf children who are American Sign Language users, however, often have smaller vocabularies and lower literacy levels than their hearing peers (Lederberg & Prezbindowski, 2001; Schirmer & McGough, 2005). Despite the importance of teaching vocabulary for young deaf children, there are very few investigations on this important topic (Luckner & Cooke, 2010).

This study examines the nature of vocabulary instruction by four early childhood teachers of deaf children (TODs) from two classrooms through a qualitative collective case study. Findings indicated that the Four-Part Vocabulary Program (Graves, 2006) could account for the nature of vocabulary in these classrooms; however, within this framework TODs used qualitatively different language strategies to address the unique aspects of teaching a visual language. Furthermore, there was interplay of teacher knowledge about learners, curricula, and pedagogy that informed their instructional planning and decision-making.

Implications of this study include the varying roles of teacher knowledge, experience, and evidence in guiding ASL vocabulary instruction for TODs.

DEDICATION

For Cori and Howard

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"It is good to have an end to journey toward; but it is the journey that matters, in the end."

— Ernest Hemingway

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CHAPTER ONE

INTRODUCTION

The linguistic and instructional needs of deaf children[1] have been passionately debated for more than two centuries (Lane, 1984; Lang, 2011; Moores, 2001, 2010), as this population has often struggled to acquire the literacy skills necessary for academic success (Carney & Moeller, 1998; Gallaudet Research Institute, 2011; Holt, Traxler, & Allen, 1997; Paul, 2009; Schirmer & McGough, 2005; Trezek, Wang, & Paul, 2011). While the research in deaf education has addressed many issues of language, school placement, and literacy development (Chamberlain & Mayberry, 2008; Easterbrooks, 2010; Marshark & Spencer, 2010; Moores, 2001, 2010), much continues to be unknown about how deaf children develop language and literacy skills in the classroom setting (Easterbrooks, 2010; Golden-Meadow & Mayberry, 2001; Luckner, Sebald, Cooney, Young, & Muir, 2005/2006; Marshark, Sarchet, Rhoten, & Zupan, 2010; Marshark & Spencer, 2011). This is unsurprising given that the incidence of hearing loss is less than 1 in 1,000 (Gallaudet Research Institute, 2011; Reilly & Qi, 2011) and relatively few scholars are undertaking research in this area. With the high stakes nature of today's educational system in the United States and the demand for quality education for students who are culturally and linguistically diverse (Cochran-Smith & Power, 2010), further

[1] Although people-first language has been accepted as the preferred terminology to place the value of people as individuals over the characteristics of their disabilities, it has "long been rejected" by those in the Deaf community (Mackelprang, 2011, p. 441). Instead, many use deaf-first language to respect the connection of identity and hearing loss that is important to the Deaf community. Therefore, the term "deaf person" will be used hereafter to refer to a person who is deaf or hard of hearing.

understanding of the complex and multifaceted issue of literacy development in deaf students remains paramount.

Absence as Obstacle: The Complicated Path to Literacy

The absence of hearing disadvantages the deaf reader before he or she even attempts to understand the printed word (Goldin-Meadow & Mayberry, 2001; Harris, 2010; Marshark, 2007; Mayberry, 2010, Spencer, 2004; Stredler-Brown, 2010). Not only are many deaf children unable to access the sounds that underlie print relationships, but they are also often without crucial language input that informs the reading process (Harris, 2010; Mayberry, 2010; Musselman, 2000; Trezek, Wang, & Paul, 2011). The lack of both sound and language input together might create a barrier to learning that deaf children potentially spend years attempting to overcome.

For the typical child, access to language begins at birth. For the typical deaf child, however, access to language is a challenge that she/he may endure for a lifetime. Only five percent of deaf children are born into families with at least one deaf parent (Mitchell & Karchmer, 2004). Being born into a family with a deaf parent may mean being exposed to a visual language, such as American Sign Language (ASL), from birth. Through the use of a visual language, these children are provided opportunities for engaging in language building activities and developing knowledge about the world to which other deaf children may not have access (Grosjean, 2001). It is no surprise, then, that deaf children of deaf parents have been shown to develop language comparable to their hearing peers of hearing adults (Anderson & Reilly, 2002; Lillo-Martin, 1999; Mayberry, 2007, 2010; Mayberry & Squires, 2006; Newport & Meier, 1985; Reilly,

2006). Furthermore, as there is positive correlation between deaf children's ASL and written English skills (Easterbrooks & Huston, 2007; Freel et al., 2011; Padden & Ramsey, 1998; Strong & Prinz, 1997), these children also have demonstrated higher competency than deaf children with hearing parents in regard to overall academic achievement and literacy skills (i.e. Chamberlain & Mayberry, 2000, 2008; Mayberry, 2010; Mitchell & Karchmer, 2011; Padden & Ramsey, 1998; Strong & Prinz, 1997).

Unfortunately, the other 95% of deaf children are born to hearing parents who may not have knowledge of sign language (Goldin-Meadow & Mayberry, 2001; Kuntze, 1998, Mitchell & Karchmer, 2004; Marshark, 2007; Moeller & Schick, 2006). In fact, only 10% of hearing parents will learn to use sign language despite the fact that 40% of deaf children's primary communication mode is some form of sign language (Kuntze, 1998; Gallaudet Research Institute, 2011). For these families, providing rich linguistic support is likely a challenge, as they may not be able engage their child fully in a language that he/she can access. Even when parents attempt to use a signed language, their ability to provide fluency and consistency in their linguistic interactions is inhibited until they have mastered the language to a certain degree themselves, which may lead to variable linguistic input (Goldin-Meadow & Mayberry, 2001; Harris, 2010; Kuntze, 1998; Marshark, 2007; Mitchell & Karchmer, 2004; Moeller & Schick, 2006) often leaving deaf children without competency in ASL (Chamberlain & Mayberry, 2008; Singleton & Supella, 2011).

This lack of language input in the home makes the school setting even more critical, as deaf children are likely to receive their primary language input almost solely

during the school day from a teacher of deaf children (TOD) or interpreter proficient in ASL and therefore capable of engaging students in a language that is accessible to them. However, there are a low number of deaf teachers available to young deaf children and TODs and educational interpreters have demonstrated varied proficiency in ASL (Schick, Williams, & Kupermintz, 2006).

Research has shown that rich language input and linguistic support in early childhood is predictive of the early literacy skills that correlate with later reading comprehension (Baumann 2009; Baumann, Kame'enui, & Ash, 2003; Biemiller & Boote, 2006; Dickinson, McCabe, Anastasopoulos, Peisner-Feinberg, & Poe, 2003; Snow, Burns, & Griffin, 1998; Stahl & Nagy, 2006). Therefore, it is not surprising that the majority have literacy and academic levels well below their hearing peers (Allen, 1986; Goldin-Meadow & Mayberry, 2001; Mitchell & Karchmer, 2011; Paul, 2009; Traxler, 2000; Trezek, Wang, & Paul, 2011). Specifically, high school graduates who are deaf have demonstrated a median reading level of 4th grade for decades (Holt, Traxler, & Allen, 1997; Marshark, Lang, & Albertini, 2002; Schirmer & McGough, 2005; Trezek, Wang, & Paul, 2011), with one study indicating that 30 percent of deaf students exiting high school qualify as functionally illiterate (Vernon, Raifman, Greensberg, & Monteiro, 2001).

The inconsistent language input experienced by many deaf children, combined with the limited knowledge about the nature and quality of language and literacy instruction to which deaf children are exposed (Easterbrooks, 2010; Knoors & Hermans, 2010) and the need for strong vocabulary skills that underlie later literacy and

achievement levels, leave many questions regarding instructional practice and learning for deaf children in the U.S. Therefore, understanding the nature of language and literacy education in early childhood classrooms that serve deaf children is a worthy educational research goal.

Classroom Instruction in Early Childhood: Why Vocabulary?

The National Reading Panel (NRP; 2000) has identified early literacy instruction as a comprehensive program including instruction on several important factors in the development of reading and writing skills. These factors include phonological awareness, alphabet knowledge, book and print awareness, and cognitive factors such as visual processing and processing speed. This panel of literacy experts also identified vocabulary as one of the five major areas of language and literacy instruction (NRP, 2000). In particular, vocabulary instruction is considered especially important in early childhood (Neuman, 2011). Vocabulary has been linked to both phonological awareness and word recognition in the early grades (Nagy, 2005), with those children who have larger vocabularies demonstrating higher levels of phonological awareness and word recognition. Vocabulary is also one of the strongest predictors of reading comprehension in the later grades, with children who demonstrate larger vocabularies in early childhood demonstrating higher reading comprehension levels at the 4th, 7th, and 11th grade level (August, Carlo, Dressler, & Snow, 2005; Cunningham & Stanovich, 1997; Scarborough, 1998; Tabors, Snow, & Dickinson, 2001). While this relationship is complex, reciprocal, and interrelated with other language and literacy skills, in the early childhood years, vocabulary learning is considered an essential building block of literacy (Baumann,

Kame'enui, & Ash, 2003; Dickinson, McCabe, Anastasopoulos, Peisner-Feinberg, & Poe, 2003; Neuman, 2011).

Given the importance of vocabulary in the holistic development of reading and reading comprehension abilities, it can be foreseen that evidence shows children with smaller vocabularies are disadvantaged in the reading process (Biemiller & Boote, 2006; Vasilyeva & Waterfall, 2011), a disadvantage that grows with time (Biemiller, & Slonim, 2001; Stanovitch, 1986). Given that high school students are estimated to have knowledge of 75,000 words in English upon graduation, this growing discrepancy in vocabulary knowledge poses quite a challenge for students with low vocabularies in the early years (Snow & Kim, 2007).

Even though vocabulary has been considered instrumental to literacy development, there has been a pervasive lack of vocabulary instruction in the classroom, especially instruction related to oral vocabulary, or vocabulary that is spoken and not learned through print (National Early Literacy Panel, 2008; Neuman, 2011). This lack of vocabulary instruction is even more pronounced within the early childhood setting, as a recent study showed formal vocabulary instruction was nearly absent from four prevalent early childhood curricula and classroom instruction over the course of 660 hours of observation (Neuman & Dwyer, 2009; Neuman, 2011). This absence is remarkable as a recent study showed the complexity and variety of teacher language including vocabulary significantly related to the language levels of the children in the classroom above and beyond other naturally occurring variables in the children's lives (Huttenlocher, Vasilyeva, Cymerman, & Levine, 2002).

For children who are deaf, closing the vocabulary gap is an even bigger obstacle, as much of vocabulary development in the early years occurs incidentally or naturally though social interactions with caregivers (Burns, Griffin, & Snow, 1999). Given the previously mentioned lack of access to both sound and general language input in the early years, the potential for incidental learning is limited, making explicit instruction of vocabulary an even more essential task for TODs. However, there is little research about vocabulary development of deaf children (Anderson & Reilly, 2002; Bonvillian, Orlansky, & Folven, 1994; Bornstein, Selmi, Hayes, Painter, & Marx, 1999; Connor, Craig, Raudenbush, Heavner, & Zwolan, 2006; Gilbertson & Kamhi, 1995; Lederberg & Beal-Alvarez, 2011; Lederberg & Everhart, 1998; Lederberg, Prezbindowski, & Spencer, 2001; Lederberg & Spencer, 2001; Osberger, Moeller, Eccarius, Robins, & Johnson, 1986; Petitto, 1988; Spencer & Lederberg 1997), and even fewer studies of evidence-based instruction, including vocabulary (Easterbrooks & Stephenson, 2006; Knoors & Hermans, 2010; Lederberg & Beal-Alvarez, 2011; Luckner et al., 2005/2006; Luckner & Cooke, 2010). What research does exist indicates that the use of stories told through ASL by a fluent signer has had a positive effect on students' vocabulary skills (Cannon, Fredrick, & Easterbrooks, 2010; Golos, 2010; Mueller & Hurting, 2010), although, most teachers of deaf children are non-native signers (Allen & Karchmer, 1990). As such, research is limited regarding the ASL vocabulary instruction of TODs despite the need.

Rationale for this Study

Given the importance of vocabulary development in the early years combined with the lack of vocabulary instruction in traditional instruction, investigation into the

vocabulary instruction in classrooms for deaf children that use ASL as their primary language of instruction is a valuable research endeavor. Furthermore, the value of investigating vocabulary instructional practice is particularly important, as there have been relatively few investigations addressing vocabulary development for deaf students. Virtually no investigations have specifically focused on instructional practices outside the context of small intervention studies in deaf education (Cannon, Frederick, & Easterbrooks, 2010; Easterbrooks & Stephenson, 2006; Lederberg, & Beal-Alvarez, 2011; Luckner et al., 2005/2006, Luckner & Cooke, 2010; Marshark & Spencer, 2010; Mueller & Hurting, 2010). Therefore, the current investigation sets out to explore the nature of vocabulary instruction and learning in early childhood deaf education classrooms to address this need.

The Current Investigation

The current investigation is situated in the larger educational landscape of teacher knowledge and practice. Bransford, Darling-Hammond, and LePage, (2005) created a framework for understanding the nature of teaching and learning in the face of the changing educational system of the United States. This framework is informed by the history of education in the United States, as well as the established research base about teacher education, teacher knowledge, and teacher professionalism. This scheme takes into account three intersecting areas of teacher expertise, skills, and dispositions that are important to quality instruction in the classroom:

- Knowledge of *learners* and how they *learn and develop* within social contexts,

- Conceptions of *curriculum content and goals*: an understanding of the subject matter and skills to be taught in light of the social purposes of education, and
- An understanding of *teaching* in light of the content and learners to be taught, as informed by assessment and supported by classroom environments (p.10)

For Bransford and his colleagues (2005), these three areas come together to show the common kinds of practices that draw on shared understanding of how to foster student learning" (p.5) so that teachers can engage in informed decision-making that will "enable them [teachers] to help all students succeed" (p.8). Informed by these areas of research, this study contributes to the understanding of the complex nature of classroom instruction by exploring the following question: What is the nature of vocabulary instruction in early childhood classrooms for deaf children who have American Sign Language (ASL) as a primary language? Specific aims of this study will be answered by the following questions:

1. What knowledge do teachers of deaf children (TOD) who use ASL possess in regard to effective vocabulary instruction?
2. What vocabulary instructional strategies do TODs use to teach ASL vocabulary?
3. What linguistic and cultural pedagogical considerations affect TODs vocabulary instruction?

The Unique Contribution of this Research

The development of language plays an important role in learning, especially the development of vocabulary in the early years (Neuman, 2011; NRP, 2000). Given that deaf students who use ASL are likely to receive both their primary language (ASL) and their second language (English) instruction from the teacher, this investigation into the language instruction of TODs is useful in understanding the ways new ASL vocabulary are being introduced to young deaf children.

As there currently is an absence of research that explores the actual vocabulary instruction occurring in early childhood classrooms for deaf children, this study describes current classroom practices of four teachers, exploring questions of 'what is done', 'how it is done', and 'why it is done.' Specifically, this study highlights how instructional theory of hearing children can be merged with the unique activities and strategies that teachers use to address learners of a visual language like ASL. Through this work the connections between promoting ASL vocabulary and Deaf culture can also be seen.

Finally, this study also provides insight into how teacher knowledge about their students, curricular theory, and teaching interact through instructional decision-making. As instruction is not a static process, this study describes how teachers have evolved to engage in their current instructional practice and thinking. Therefore, by investigating the instruction and decision-making of TODs in regard to vocabulary, implications for deaf education and future research on this topic are addressed in an effort to contribute to field.

Overview of Upcoming Chapters

In Chapter 2, the literature impacting this study will be presented as it relates to the Bransford et al. (2005) framework on instructional influences: knowledge of deaf learners in regard to language and vocabulary learning; knowledge of curriculum impacting language learning for deaf children in the classroom; and knowledge of pedagogy related to vocabulary strategies shown to be effective. Chapter 3 outlines the methods and analysis of this investigation including the research design (collective case study), data collection procedures, analysis framework (content analysis), and participants. Chapter 4 presents findings related to teacher knowledge and practice on vocabulary instruction used in their classrooms. Chapter 4 also discusses how these findings intersect with the conceptual framework of this study (Bransford, et al., 2005). Finally, Chapter 5 comments on the implications of this study for deaf education and future avenues for research.

Definition of Terms

American Sign Language (ASL) – is a complete language influenced by, but independent of English, and the defining characteristic of the American Deaf community. ASL is also considered a natural language that is more easily learned that an artificial communication system, as it has evolved to make efficient use of space, movement, and vision (Moores, 2001; Stredler-Brown, 2010).

Auditory-Verbal Approach – a unisensory approach evolving out of the oral-aural method that focuses on audition, primarily on developing listening skills (Moores, 2010; Stredler-Brown, 2010).

Auditory-Oral Approach – a multisensory approach that focuses on sound and listening, with the support of visual cues to assist in the process of listening and understanding (Moores, 2010; Stredler-Brown, 2010).

Bilingual Communication – this philosophy that focuses on developing both ethe signed language of the Deaf community and the local spoken language (Stredler-Brown, 2010). In the US, this approach may have been called the bilingual/bicultural method or the ASL-English method and focused on the use of ASL for language interactions and English for reading and writing (Moores, 2001, 2010).

Conceptually Accurate Signed English (CASE) – a method that uses ASL signs and puts them in English word order, with the addition of features of ASL such as glosses and ASL facial expressions; however, does not add in visual representations of English grammatical morphemes (Stredler-Brown, 2010). Sometimes CASE is referred to as Pidgin Signed English (PSE; Stredler-Brown, 2010).

Cued Speech – a method created in the mid-1960's that uses handshapes near the mouth, throat and chin to represent of English phonemes and assist in understanding spoken English (Stredler-Brown, 2010).

(d)eaf – a term used generally to describe people with hearing loss, but recently many people in the field have been using it strictly in reference to lack of hearing in the physical or audiological sense (Marshark, 2007).

(D)eaf – an adjective, most often "referring to people who see themselves as part of a community bound together by historical successes and challenges and a common language" (Marshark, 2007, p. 8). The common language is not limited to ASL, as

it can also be one of the many languages used by various Deaf communities in the world, such as Australian Sign Language (Auslan), British Sign Language (BSL) or French Sign Language.

Deaf Community – an identifiable subculture that has "its own social structures, organizations, attitudes, and values" with members that "are defined primarily by their fluent use of a natural sign language, such as ASL or BSL" (Marshark, 2007, p. 9)

Deaf Culture – the shared cultural and behavioral characteristics of the Deaf community (Padden & Humphries, 1988). In the United States, these characteristics have evolved heavily through the "enculturating influence of residential schools" (Moores, 2001, p. 23).

Early Childhood Education – the education a child is exposed to from birth through age eight.

Early Literacy Skills – a combination of precursor skills (i.e. general oral language, vocabulary, etc.) and skills associated with formal reading and writing (decoding, oral reading fluency, reading comprehension, writing, and spelling) that are typical to preschool and kindergarten instruction (National Early Literacy Panel, 2008).

Emergent Literacy – a child's early reading and writing experiences that eventually develops into conventional literacy skills (Sulzby, 1990).

Hearing Impaired – a term that is used frequently world wide in regard to people with hearing losses. The World Federation of the Deaf and the International Federation of Hard of Hearing People rejected the term in 1991, replacing it with the term

Hard-of-Hearing (Marshark, 2007) as it is generally considered "a pejorative term" to "be avoided" (Moores, 2001, p. 10). Although this term is still used heavily in certain international circles.

Hard-of-Hearing – a term used to describe a person or people whose "hearing is disabled to an extent that makes difficult, but does not preclude, the understanding of speech through the ear alone, with or without a hearing aid" (Moores, 2001, p. 11). This is the preferred term in the United States over *Hearing Impaired*.

Manually Coded English (MCE) – a set of formally developed systems that combine signing and English to facilitate the presentation of English in a visual manner (Marshark, 2007). MCE systems often share signs with American Sign Language, but adds signs for English structures not present in ASL and relies exclusively on the use of English syntax. Signing Exact English, Signed English, and Seeing Essential English are all types of MCE (Goldin-Meadow & Mayberry, 2001; Marshark, 2007). The two most commonly recognized manually coded English systems are Signed English and Signed Exact English (Stredler-Brown, 2010).

Medical/Pathological Perspective on Deafness – Historically, this perspective has been the dominant perspective on deaf individuals and views deafness as deficiency, a problem to be fixed within the individual by curing hearing loss (Moores, 2001).

Oral-aural method – in this method children are exposed language through the amplification of sound and speech reading (lip reading). Students use spoken language to communicate with others. In strict oral-aural educational programs, children are discouraged from using any forms of signs (Moores, 2001, 2010).

Oral Vocabulary – vocabulary that is used and/or learned through spoken language and not through print (Neuman, 2011).

Reading/Print Vocabulary – vocabulary learned through the reading process or through print exposure (Neuman, 2011)

Seeing Essential English / Signed Exact English (SEE) – two closely related types of Manually Coded English that are often referred to as one sign system. These systems borrow ASL signs, place those signs in English word order and add signs for features of English non-existent in ASL. Specifically, this system is notable especially for the systematic addition of English tenses, prefixes, and suffixes in sign. The major difference between these two systems is that there is a one-to-one correspondence between signs and meanings in Signing Exact English, while the Seeing Essential English form relies on signs that can connect through sound, meaning, or spelling, not meaning exclusively (Marshark, 2007; Stredler-Brown, 2010).

Sign Vocabulary – vocabulary learned through the use of ASL or the equivalent to oral vocabulary for hearing students.

Simultaneous Communication (SimCom) – simultaneous use of spoken language and sign language at the same time, typically with sign following the English word order (Stredler-Brown, 2010).

Sociocultral Perspective – a perspective that views being deaf as a difference, not a deficit. This perspective also believes that being deaf "places no limits on social, emotional, intellectual, and academic achievement" (Moores, 2001, p. 1).

Tier One Vocabulary – a basic, everyday, familiar vocabulary word that takes less instructional time to teach a child (Beck, McKeown, & Kucan, 2002)

Tier Two Vocabulary – a complex and multifaceted word that is high frequency across contexts, has instructional potential, and creates nuance and precision for language (Beck, et al., 2002)

Tier Three Vocabulary – a word that is more likely to be introduced in print and is domain specific (Beck, et. al., 2002)

Total Communication – a philosophy that uses the combination of oral methods with the use of signs, fingerspelling, and strategies to "foster communicative success" (Stredler-Brown, 2010, p. 296). Historically, total communication has been interpreted as using signs and voice at the same time (Moores, 2001, 2010); however, in recent years codeswitching between the two languages (spoken and sign) has been the trend.

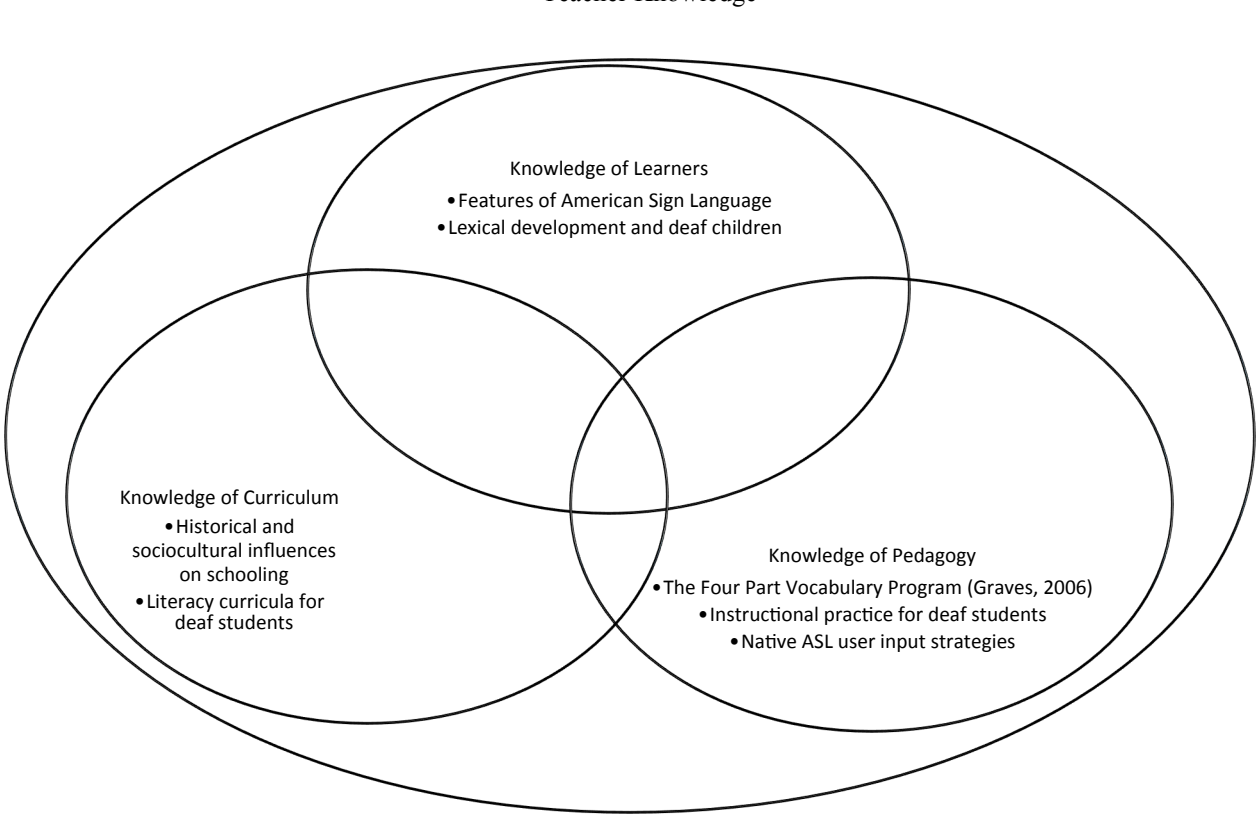
Word Consciousness – a term used to describe a child's awareness of and interest in learning new words (Nagy 2005; Graves, 2006, 2009).

CHAPTER TWO

REVIEW OF THE LITERATURE

Bransford, Darling-Hammond, and LePage (2005) constructed a framework for teaching that consists of three important types of teacher knowledge: knowledge of learners and their development, knowledge of subject matter and curriculum, and knowledge of teaching (p. 11). Given the complex understandings of teacher knowledge and the varied bodies of knowledge necessary to engage in the act of teaching, this framework is particularly useful in organizing the bodies of research connected to the current investigation. On the surface, the research literature that is necessary to inform a study on this topic is seemingly disparate, drawing from various areas of child development, instruction, and sociocultural contexts of curriculum and instruction for deaf learners. However, by bringing together the literature within this conceptual framework, the underlying and interconnected nature of the research can truly be seen and understood in a relevant manner (See *Figure 1* below).

Figure 1: Conceptual Framework and Informing Bodies of Research



As *Figure 1* above depicts, this chapter will begin by setting the context for this dissertation by reviewing relevant literature on the topic of what constitutes teacher knowledge and practice. Then within the Bransford et al. (2005) framework, the bodies of research that would inform teacher knowledge on deaf learners, curricula for deaf children, and ASL vocabulary pedagogy for deaf children will be reviewed. In *knowledge of learners* the literature will be focusing on two key groups of research related to what teachers may know about deaf learners: ASL and lexical acquisition. Therefore, this section will outline the defining features of ASL, the language of the learners in this

investigation, and then move to describe the lexical development of deaf children, as it is the foundation for understanding the acquisition and processes of vocabulary for this population. In regards to *knowledge of curriculum*, there are two important topics that may be important to understanding teacher knowledge: the language wars, or the debate over language of instruction, and the curriculum choices that are made for deaf children. Finally, *knowledge of pedagogy* focuses on bringing together Michael Graves' (2006) instructional theory related to high-quality vocabulary instructional practices for all children, and the relatively small number of studies on successful native language strategies used with deaf children both in the classroom and at home.

Teacher Knowledge

Bransford et al. (2005) are not the first to discuss the role of teacher knowledge in effective teaching and learning, as the definition of teacher knowledge has had a history of debate in the field. This debate has centered on differing perspectives as to what ultimately constitutes teacher knowledge and what terms should be used to describe the knowledge that teachers possess. Indeed, themes related to subject matter knowledge and pedagogical knowledge have played a prominent role in the larger teacher educational landscape over the years.

Shulman (1983) asserted that there is a knowledge base for teaching, "a codified or codifiable aggregation of knowledge, skill, understanding, and technology" (p. 4), however he criticized the field of education for having a vague definition of "what teachers should know, do, understand or profess" (p. 4). In his perspective, the kinds of activities required to demonstrate knowledge as a teacher "trivialize" teaching by

ignoring the complexities and demands truly required of the teaching profession (p. 6). Furthermore, he noted the "critical features of teaching, such as the subject matter being taught, the classroom context, the physical and psychological characteristics of the students … are typically ignored in the quest for general principles of effective teaching" (p.6).

For Shulman (1983), there exists a dynamic and robust knowledge base necessary for the teaching profession that extends beyond the simplicities of the instructional principle. He reported on seven categories that he considered the minimum knowledge categories for teaching: content knowledge; general pedagogical knowledge; curriculum knowledge; pedagogical content knowledge; knowledge of learners and their characteristics; knowledge of educational contexts; and knowledge of educational ends, purposes, and values (p. 8). Of all of these bodies of knowledge, however, Shulman privileged pedagogical content knowledge, or the blending of content and pedagogy, as it the only distinctive body of knowledge exclusive for the teaching profession. Through pedagogical content knowledge, teachers are able to engage in the "learned profession" of teaching by understanding "how particular topics, problems, or issues are organized, represented, and adapted to the diverse learners interests and abilities of learners, and presented for instruction" (pp. 8-9).

Ball (1990) further refined ideas around teacher's content knowledge by exploring the knowledge of teachers in relation to math education. For Ball, there were two distinct markers for distinguishing content knowledge from pedagogical content knowledge in mathematics: knowledge *of* mathematics and knowledge *about* mathematics (p. 458). The

knowledge of mathematics (content knowledge) is related to the knowledge about the concepts and procedures *of* performing math, while the knowledge about mathematics (pedagogical content knowledge) was defined as knowledge *about* the substance of mathematics and all of the meta-knowledge necessary to adequately teach decision-making about the concept to someone else. In Ball's perspective, content knowledge is a prerequisite for pedagogical content knowledge; however, it is not sufficient in and of itself. Although Ball discussed the nature of knowledge as it pertains to mathematics, she argues that other content areas require similar high-level understandings specific to their content, as well.

Furthering this conception of teaching as a complex and advanced profession, Feiman-Nemser and Remillard (1995) remarked that by "framing a professional knowledge base around discrete domains helps us appreciate the range of knowledge and values that bear on teaching" (p. 74). While these categories may capture the range of knowledge necessary for teaching, these authors also recognized that categorization can misrepresent the "interactive character of teachers knowledge" by portraying the knowledge bases as much more simplified than they really are (p. 74). Therefore, these authors discuss the continued need for researchers to investigate the "processes by which teachers meld different kinds of knowledge in teaching," in particular aspects related to "judgment and reasoning" that teachers must learn to apply in the classroom (p. 74).

Fenstermacher (1994) introduced a different layer to the discussion of what constitutes teacher knowledge by approaching it from an epistemological standpoint. He argued that by categorizing teacher knowledge into distinct types that are informed by

only one epistemology rooted in behavioral science, that the bases of teacher knowledge are ultimately linked to the assumptions of the epistemology that generated the knowledge. If those assumptions are found to be faulty, then the knowledge base for teaching, and subsequent policy, are likely to "fail to address the problems and aspirations of education in positive and ameliorative ways" (p. 4). As a result, he evaluated the research on teacher knowledge by examining the role of the knower and the known.

For Fenstermacher (1994), understanding both who generates the knowledge (knower) and what knowledge is generated (known) helps to illuminate the certain complexities surrounding the idea of teacher knowledge and practice. By engaging in this work, he found that in addition to the formal knowledge generated by traditional behavioral research, there also exists practical knowledge generated by teachers as a result of their experiences teaching (p. 49). Although these two areas of knowledge in teaching are considered distinct, Fenstermacher went on to acknowledge the important interplay among them, as " the critical objective of teacher knowledge research is *not* for researchers to know what teachers know but for teachers to know what they know" (p. 50). Therefore, it is only with teachers being "knowers of the known" that the lofty goals of teaching can be realized (p. 50).

Fenstermcher's (1994) conclusions regarding the role of knower and known were chiefly informed by the early work of Cochran-Smith and Lytle (1990; 1993) in this area. As Cochran-Smith and Lytle's theory developed, these authors later separated teacher knowledge into three separate concepts: knowledge-for-practice, knowledge-in-practice,

and knowledge-of-practice (Cochran-Smith & Lytle, 1999, p. 250). Knowledge-for-practice is the kind of knowledge that is generated typically by university-based researchers for teachers to use to improve practice. This kind of knowledge would be what Fenstermacher referred to as formal knowledge. Knowledge-in-practice is the knowledge generated by teachers when they learn through the act of teaching and reflect on those leanings. This concept is similar to Fenstermacher's "practical knowledge." Cochran-Smith and Lytle take one additional step in defining teacher knowledge by adding in a third conception of knowledge, knowledge-on-practice. This conception of knowledge evolves when teachers actively investigate their own classrooms, connecting the knowledge and theory created by researchers to the interpretive context of their classrooms and learners. By engaging in inquiry within the classroom, these teachers produce a knowledge base that is connected to the larger social contexts and more nuanced than the traditional "do's" and "don'ts" of teaching. By adopting an "inquiry stance", teachers are truly engaging in the complex activities that make teaching the "learned profession" that Shulman purports (1983).

Knowledge of Learners: Language Development of Deaf Children

The system of deaf education is the oldest form of special education in the United States (Moores, 2001). Therefore, the body of research on language development and deaf children is one that spans decades with some of the foundational work on establishing ASL as a complete, recognized language being conducted in the 1960's through the 1980's (i.e. Stokoe, Casterline, & Croneberg, 1965). Understanding the particular nature and features of ASL is essential to any study of teaching in a classroom

that uses ASL as an instructional language, as language mediates the teacher-student interactions involved in effective classroom instruction (Bruner, 1987). Furthermore, understanding the aspects of ASL that elevate it to the status of being a complete language rather than just a communication modality or representation of English (i.e. Signed Exact English; SEE) is an important aspect of teacher's knowledge that has the potential to affect the type of language input provided to deaf children in the classroom.

Features of American Sign Language

In the conceptual work that pulled together the vast knowledge on ASL by Newport and Meier (1985), ASL is defined as a "visual-gestural language which has arisen as a natural language within the Deaf community of the United States and other parts of North America" (p. 881). Furthermore, they argue that unlike previous assertions of ASL being a pantomimic, or non-linguistic, system for communication, that ASL is in fact, "a fully grammaticized language …. and it displays the various grammatical characteristics typically found in spoken languages of the world, despite the apparent potential for a different type of organization offered by the visual-gestural modalities" (pp. 881-882). Unlike other sign systems that are primarily created to provide deaf children access to English, such as Signed Exact English, ASL has a grammatical rule bound system that is unique to the use of the manual modality and includes all features necessary to be considered a full and complete language of its own. In their review of the literature on the linguistic characteristics of ASL, Newport and Meier documented its dominant features in the following linguistic areas: iconicity, phonology (also known as cherology), syntax, and morphology.

Although ASL has many signs that have arbitrary meanings attached to them, they also have a portion of their signs that are iconic, or resemble the actual referent. For these signs, the shape of the hand and the use of space are intended to create a mental representation of the object or movement in question. For example, Newport and Meier (1985) discuss the iconicity of the sign for TREE, as it looks like a tree trunk with leaves blowing in the wind (p. 882).

In regards to phonology, Newport and Meier (1985) makes the case that ASL is not consumed at global iconic wholes or individual sign level. Instead individual signs can be broken into smaller components that when put together constitute an individual sign (Stokoe, Casterline, & Croneberg, 1965). In early studies of these subcomponents of sign, Stokoe coined the term cherology to describe what would be the equivalent of spoken language phonology. In recent years, however, the term has been either replaced by or interchanged with the term phonology itself (Seegmiller, 2006; Stokoe, 1960). The components of phonology/cherology include three simultaneously occurring features: the shape of the hand, the place the hand is located, and the movement attached to the hand. These three features of the language interact in specified ways that produce the sign as a whole. As with spoken languages, a change in one of these features can change the meaning of the sign completely. For example, the same closed fist handshape that produce the sign for SHOE when tapped together twice, will make the sign for BICYCLE if moved in a circular motion resembling the pedaling of a bike. However, unlike spoken languages, the phonology/cherology of sign occurs simultaneously as opposed to sequentially.

Newport and Meier (1985) also argue that the syntax of ASL includes the majority of the features of spoken languages: nouns, verbs, pronouns, adjectives and adverbs. However, they note that prepositions are absent from ASL. Instead the signer creates understanding by introducing spatial relations to convey the meanings for which a preposition is typically responsible. For example, if two objects are adjacent to one another they are signed in similar approximations instead of using a sign for "next-to". The use of space and facial expressions are also important grammatical markers in ASL. For example, pronouns are typically directed at the person who is the referent. If the person is not present, then a spatial "placeholder" is created and the pronoun motion is directed consistently at that place when referring to the person being discussed. Furthermore, facial expressions are essential for conveying meaning and following specific rules. For instance, eyebrows are furrowed to indicate a question or the head is always moved from side to side to indicate negation. Finally, it is noted that while there are general rules for word order in ASL (i.e. the noun or referent typically comes first), there is much flexibility in the ordering of the signs to convey meaning. In other words there often can be multiple ways to sign the same sentence.

As Newport and Meier (1985) indicate the most attention given to ASL has been in the aspect of morphology. As with sign phonology/cherology, morphology is largely simultaneous in ASL. The use of spatial relations is also very important in the morphological rules of ASL. The same handshape that indicates a person walking could be moved away from the signer (the person walked away from me) or towards the signer (the person walked toward me) to convey a different meaning. In addition, the

morphology of ASL also includes what are called classifiers, or specific handshapes that are meant to represent certain types of people or things engaging in movement. For example, the classifier for car and boat are the same. The signer first signs the referent for either car or boat then introduces the classifier as a representation. If the classifier is moved quickly, the car/boat moved quickly, and vice versa. The use of classifiers can represent entire sentences and are largely used in ASL storytelling to make the story come alive for the audience. They are also considered some of the most advanced forms of the language, as the mastery of classifiers is required to reach the top levels of ASL proficiency exams such as the American Sign Language Proficiency Interview (ASLPI; Gallaudet University ASL Diagnostic and Evaluation Services, 2013). Finally, there are certain movements that when applied to signs can change it from a noun to a verb. For instance, the sign for CHAIR requires a double tap of the fingers, however, the same sign is turned into a durative verb by applying repetitive small circles to the sign for CHAIR to denote the concept BEEN-SITTING for some time.

ASL is not the only visual sign system that has been used with deaf children in the United States. Other systems have been created to help children learn and use English. As these different systems are created as a way to access English, they are based on a different language than ASL and may result in different approaches to teaching. Signed Exact English takes ASL signs and places them in English word order, while at the same time creating new signs for aspects of English that do not exist in ASL like prepositions (Moores, 2001). Often signs are also modified to use the first letter of the English word instead of the ASL sign in its purest form. Cued speech, or a sign system that represents

phonemes and is signed closely to the mouth, was created to assist in speech reading and rose to popularity in the 1990's (Moores, 2001). The newest of the sign systems is CASE, or Conceptually Accurate Signed English, is a blend of ASL signs and English word order that privileges meaning to English grammar and is most often used during reading instruction. Even in classrooms that use ASL for communication, CASE may be introduced as a way to facilitate the connection of the ASL and English language systems. The important difference of CASE from other English sign systems is that signs are chosen based on understanding, not on English phonology or grammar. For example, the sign for "cold" (the sensation) and the sign for "cold" (the sickness) are signed differently based on meaning. In using CASE, the intent behind the word, or word meaning, takes precedence over the word's relationship to English.

In conclusion, teachers of deaf children who are acquiring ASL as a first language will be required to use this language for instruction. For young learners this instruction also may include being language role models in the classroom. Therefore, the knowledge of features of ASL (Iconicity, Phonology, Syntax, and Morphology; Newport & Meier, 1985) is essential for TODs who are instructing primary language ASL children.

Lexical Development and Young Deaf Children

Along with understanding the unique aspects of ASL, it is also important to address the body of research on how deaf children acquire their lexicon. The current investigation focuses on lexical development, as the majority of these studies are not specifically investigating the development of sign vocabulary, but instead are interested in understanding the global lexicon of deaf children including sign vocabulary, oral

vocabulary, and print vocabulary. Given the diversity of studies being included, this section of the literature review will synthesize results from studies on the rate of lexical development for deaf children and the processes involved in lexical development for deaf children rather than report on each individual study in depth.

One of the main lines of inquiry regarding the language development of deaf children is whether deaf children acquire language similarly or differently than hearing children. Deaf children have been shown to demonstrate their first signs on par, if not earlier than hearing children of hearing parents, around 8-11 months of age (Anderson & Reilly, 2002). Although, there is some debate as to whether these signs are early demonstrations of language or whether they are comparable to the communicative gestures that emerge in hearing children around that time (Anderson & Reilly). As these children grow older, however, a gap between these two groups emerges. By 18-23 months, deaf children show median scores comparable to hearing children (Anderson & Reilly), and by 30 months the deaf children have fallen behind their hearing counterparts (Spencer & Lederberg, 1997).

There have been very few studies that have examined the vocabulary of deaf children of deaf parents specifically. As a result, there is ambiguity as to how these children progress in terms of vocabulary development. For example, two similar studies of deaf children's sign vocabulary found contradictory results. Petitto (1988) found that deaf children of deaf parents who used ASL with their children from birth, showed a similar pattern of vocabulary development as hearing children of hearing parents, including the reported vocabulary spurt that happens in the early years. Bonvillian,

Orlansky, and Folven (1994) however, found similar ages of first signs/words, but not the vocabulary spurt. Instead a steady and rapid rate of growth in vocabulary words without the typical period of fast acquisition was uncovered.

It is important to note that studies examining the ASL sign vocabulary development of these children are hindered by some important limitations to assessing knowledge of ASL signs. One issue with assessing sign vocabulary through the use of pictures is that a phenomenon called 'iconicity' is likely to occur (Miller, 2008). In ASL many of the signs evolved naturally and are visually similar to the object of reference itself. On measures that use pictures of vocabulary, iconicity can often lead deaf children to deduce a correct pictorial response, as the picture may be the closest visual representation to the sign itself (Miller).

Furthermore, just the act of comparing vocabulary in ASL to English can be misleading, as well. For example, there are many English words that must be depicted in ASL by multiple signs or even fingerspelling. Therefore, the lexicalization of the English word into ASL can make it more developmentally difficult, or at the very least just different, than its English counterpart (Lederberg & Spencer, 2001). For example, to sign the word 'pony' there would be three distinct ASL features: fingerspell P-O-N-Y, then sign 'baby', and sign 'horse'. As a result, the change from the English word to the sign increased the complexity of the language interaction.

In addition, there are times that one sign may represent multiple English words. The use of classifiers for description purposes is a good example. The statement "the airplane takes off" can be signed simply by moving the sign for "airplane" from a

horizontal position upward at a 45-degree angle. Therefore, it can be difficult to use and interpret certain pre-established measures of English vocabulary for ASL vocabulary, as there is not a one-to-one correspondence between the two languages.

For deaf children of hearing parents, however, a larger number of studies have been conducted and a markedly different pattern of development was found. These children have severe delays in receptive and expressive vocabulary when compared to hearing age norms (Gregory & Mogford, 1981; Lederberg et al., 2001). These findings were consistent regardless of communication environment, with the exception of parents who were highly skilled signers (i.e. Howell, 1984). Children of skilled ASL users performed more comparably to deaf children from deaf parents and were similar to the findings of Petitto's (1988) study (Lederberg & Spencer, 2001). Furthermore, the amount of sign present in the home was also found to be correlated with children's vocabulary scores (Griswold & Commings, 1974). These researchers found that children's vocabulary scores were significantly correlated with the amount of time that sign was used in the home, but that the child's age was not. Therefore, Lederberg and Spencer concluded that, "deafness per se does not necessarily limit the size of children's vocabulary" when appropriate conditions are present in the early years (p. 94).

For children without sign in the home, lags in vocabulary started even with their first produced words, as these children may have produced words later than their peers. Some of these children uttered their first word as late as 36 months (Lederberg & Everhart, 1998). Results indicate gaps in vocabulary can be an average of 2.5 years (Gilbertson & Kamhi, 1995) and increased over time until this gap eventually levels off.

One research project showed that deaf children maxed out at approximately 9.8 years of age for receptive (Moeller, Osberger, & Eccarius, 1986) and expressive (Osberger, Moeller, Eccarius, Robins, & Johnson, 1986) vocabulary. Another study found that the complexity of semantic relationships deaf children had within their vocabularies also developed slower than their hearing peers and did not exceed 9 years 9 months (Conway, 1990). Furthermore, deaf children were not only shown to have less articles and auxiliary words than hearing children, which would be expected given the nature of ASL, these children also demonstrated smaller vocabularies for nouns and proper nouns than their hearing peers (Bornstein, Selmi, Hayes, Painter & Marx, 1999). For some children, particularly those from oral backgrounds without sign support, this gap could be even larger. For example, Gregory and Mogford (1981) investigated the vocabulary development of eight deaf children using oral communication and found that two of these children did not even have 10 words out of a list of 150 by the age of 4 years.

It is important to note that hearing loss is not an all or nothing phenomenon. While the majority of these studies were concerned with children experiencing severe to profound hearing losses, significant delays were even found to occur in children with mild to moderate hearing losses (Gilberson & Kamhi, 1995). This pattern of performance indicates that even a slight hearing loss can impact the vocabulary development of children. This is not unexpected, however, as many vocabulary words are learned from implicit exposure and even those with mild losses have a more limited access to environmental stimuli.

Although deaf children demonstrated delays in lexical development compared to hearing children, similarities in their vocabulary acquisition were also recognized. Through a series of cross-sectional and longitudinal analyses of expressive vocabulary scores for 202 children, Mayne and colleagues (Mayne Yoshinaga-Itano, & Sedley, 2000; Mayne, Yoshinaga-Itano, Sedley, & Carey, 2000) found that the deaf children as a group demonstrated a similar trajectory of learning to hearing children, including the early vocabulary spurt, however, these similar features tended to occur later for deaf children than hearing children (20 to 25 months). Furthermore, a "verb burst" was found to occur at approximately 300 words with a fast rise in number of verbs and modulated verbs, indicating that a rapid learning of new words may be related to the child's lexical level rather than the child's age (Anderson & Reilley, 2002).

Through another series of investigations on the processes of word learning, researchers discovered that word learning strategies were also contingent upon the deaf children's size of lexicon (Lederberg, Prezbindowski, & Spencer, 2001; Lederberg & Spencer, 2001). These researchers investigated the use of fast mapping, or the ability to learn a word through exposure without an explicit reference. These studies found that the emergence of the ability to fast map new words happened when the child had approximately 200 words in their lexicon. This pattern of performance supports the idea that factors like a rich linguistic environment may be key factors in the development of, "internal word learning strategies" by the child (Lederberg & Spencer, p. 105).

It is important to note that while there have been group patterns in the vocabulary acquisition rates of deaf children who are learning ASL or English, there remains much

variability within the groups assessed (Lederberg & Spencer, 2001). Therefore, it is important to examine the many variables that may be associated with the rate of growth in deaf children. One such variable is the cognitive ability of the child (Mayne, Yoshinaga-Itano, & Sedley, 2000; Mayne, Yoshinaga-Itano, Sedley, & Carey, 2000). For example, Moeller, Osberger, and Eccarius (1986) found that both expressive and receptive vocabulary was strongly correlated with the performance scale of the Wechsler Intelligence Scale for Children-Revised, a test of nonverbal cognitive ability. Children who had higher scores on this measure also demonstrated larger vocabularies.

Another important factor associated with vocabulary acquisition is early intervention. Children enrolled in early intervention programs before the age of 11 months demonstrated stronger vocabulary skills at age 5 than their peers who received services after 11 months (Moeller, 2000). Beyond age of intervention for children with hearing loss, age of amplification or implantation of a cochlear implant was another age related factor associated with vocabulary acquisition. Children who receive auditory support through technology earlier were shown to learn novel word learning skills faster (Wilstedt-Svensson, Loftqvist, Almquist, & Sahlen, 2004), demonstrate a faster rate of growth (Connor, Craig, Raudenbush, Heavner, & Zwolan, 2006), and possess a larger number of receptive and expressive vocabulary words (James, Rajput, Brinton, & Goswami, 2008) than their peers who received technology later in life. This combined body of evidence indicates that children with high quality early language input, who are identified early, implanted early and have typical cognitive functioning tend to perform similarly to typically developing hearing children, but those who have less robust early

experiences and language input may show delays and differences in their lexical acquisition rates.

Knowledge of Curriculum: History and Curricula

In order to fully understand the nature of today's educational programming in school settings for children who are deaf, it is important to consider historical, social, and political contexts surrounding the philosophy on communication choices in deaf education (Moores, 2001, 2011). The need to devote time to discussing these factors is largely due to the field of deaf education being advanced by "a belief-driven focus rather than an evidence-driven focus" making philosophical debate over the language of instruction (ASL or English) the central focus of educational programming impacting both curricular and instructional choices (Easterbrooks, 2010, p. 111). It is not enough to only address these factors, however, as there a small, but growing, body of evidence for literacy curricula that may be successful with deaf learners (Easterbrooks, 2010).

Historical and Sociocultural Influences on Curriculum

The controversy regarding the 'best' linguistic approach to the education of deaf children, to teach them to use a signed language or a spoken language, has defined choices on curriculum and instruction in deaf education classrooms for more than two centuries (Moores, 2010). As this field is deeply rooted in the history of the deaf experience in the United States, it has been approached with much emotion and fervor,

"operating just beneath the surface and frequently flare[ing] into open hostility" (Moores, 2001, pp. 67).

The debate over communication modality can be traced back to the late 18th century in Western Europe with the establishment of the first school for the deaf in Paris by Abbé De l'Épeé, which focused on the use of manual communication, or communication through the use of one's hands, instead of speech (Moores, 2010). Meanwhile, Samuel Heinicke exerted great influence over the field by establishing the oral method in a school in Lepzig in 1778 (Moores, 2010). Through the next century there was much turmoil in the field of deaf education in Europe; however, the field was united by the end of the 19th century supporting the oral method and not manual communication (Moores, 2010).

The philosophy of manual communication in France heavily influenced the United States; however, as Thomas Hopkins Gallaudet, in an effort to better understand how to educate deaf children, convinced Laurent Clerc, a deaf assistant teacher in Paris, to bring his knowledge to the Connecticut Asylum for the Education of the Deaf and Dumb (now known as the American School for the Deaf) in 1817 (Lang, 2011; Padden & Humphries, 2005). The use of manual communication remained the dominant philosophy of teaching in deaf education until it was first challenged by Horace Mann and Samuel Howe in 1844 (Moores, 2001). Horace Mann was driven by "moral convictions"

regarding the education of people with disabilities, as the use of a signed language closed deaf people off from the dominant culture and the values of society (Moores, 2001, pp. 68). His philosophical approach to language in deaf education quickly took root among some educators and thus America joined "methods wars" that had been plaguing Europe for the past century (Moores, 2010, p. 22).

Through the establishment of schools for the deaf, the unique cultural framework known as the Deaf[2] culture originated (Moores, 2001, 2010). Deaf culture is defined as the shared cultural and behavioral characteristics of the Deaf community (Padden & Humphries, 1988). This culture arose out of the sense of community that children and adults share while on the campus,

> When deaf students arrive at a school for the deaf and see for the first time not only deaf students but also Deaf adults as staff, teachers, and principals, or eve superintendents, there is recognition of the self in the other – not necessarily as identical, but as possibles. In more simple terms, deaf children see in others ways of living that they might imagine for themselves, The child no longer feels alone, freakish, or wholly responsible for oneself – no longer royalty perhaps, but finally, human in a community of others. (Padden & Humphries, 2005, p. 33).

Not only does Deaf culture focus on a distinct set of cultural and linguistic characteristics in common among community members, it views ASL as a symbol of identity for its members, as "the constituents of Deaf culture – it's values, mores, history,

[2] The capital D in Deaf indicates an association with the Deaf community and identification with Deaf culture

and artistic expression – are stored in signed language, so to speak, for transmission across generations" (Lane, Hoffmeister, & Bahan, 1996, p. 70). Due to the intertwined nature of ASL and Deaf culture, the debate over mode of instruction is as much of an issue of culture and identity as much as a debate about the specific language or communication mode itself (Lane et al., 1996; Padden & Humphries, 2005).

As a result, the debate over these language philosophies has spurned an equally intense ideological debate over how society views and defines the deaf individual (Lane, 1984; Moores, 2001). The two major ideologies being debated are the medical or pathological model, which has been the ideology typically associated with the oral/aural language philosophy, and the sociocultural model, which has been more recently attached to the philosophy of providing access to visual language, specifically ASL (Moores, 2001, 2010). The medical model views deafness as deficiency, a problem to be fixed within the individual by curing hearing loss (Lane, 1984; Moores, 2001). The sociocultural model, however, views deafness as a difference, considering deaf individuals as being able to develop and achieve comparable to their hearing (people who can hear) counterparts given a society willing to include access for diverse individuals (Lang, 2011; Moores, 2001). The latter model grew over the course of the 20th century, as Stokoe in 1960 recognized ASL as a true language and deaf people began demonstrating a stronger political voice (Lang, 2011). The medical model did not vanish, however, as a record number of young children received cochlear implants in the past decade indicating that "There is no sign that these seemingly disparate cultural and clinical perspectives will be easily resolved" (Lang, 2011, p. 14).

Any classroom specifically for deaf learners is contextually bound to these particular debates and conflicts, as these classrooms adopt a language philosophy for classroom interaction and instruction (Moores, 2001, 2010). By adhering to a language philosophy to which an ideology is attached, teachers' practices and beliefs are inevitably shaped. Consequently, any investigation into instruction for the deaf population must bear in mind the rich historical factors that can impact teacher practice in today's classrooms and schools. Therefore, when investigating the nature of language and instruction in classrooms, the classroom context must be addressed with sensitivity to the loaded history that surrounds the dialogue about language use in deaf education.

Literacy Curriculum for Deaf Children

In the 20th century much of the curricular choices were created and maintained at the schools for the deaf (Easerbrooks, 2010). With the establishment of the special education law PL 94-142 and more recent policy initiatives that promote standardization for general education and special education alike, these resources have been all but abandoned for curricula that mirrors general education and state standards (Easterbrooks, 2010; Moores, 2001). As a result, the belief-driven approach to deaf education that has dominated both classroom philosophy about curriculum and pedagogy for hundreds of years, has given way in the last decade to include a focus on evidence-based approaches to the education of deaf students, as well (Easterbrooks, 2010). While the evidence remains sparse in regards to the best curricular approaches, there is a small body of research that has shown certain literacy curricula to have positive effects when used with deaf children. These curricula include those that are designed specifically for deaf

children, or were created for hearing children and modified with the deaf population in mind: *Reading Milestones*, *Reading Bridge*, *Edmark Reading Program*, *Fairview Reading Program*, and *Reading Recovery*.

Reading Milestones is a reading program designed specifically with deaf and hard of hearing children in mind. The program was first published in the early 1980's and its fourth edition is currently available from the publisher Pro Ed Inc. *Reading Milestones* is a basal reading program that focuses on language and literacy for elementary students. This curriculum is described as a "language-controlled" program designed to provide strategic introduction of language and literacy concepts through the following techniques: adjusted language level; controlled vocabulary; controlled syntax; chunking of sentence constituents; and repetition (PRO-ED, 2013a). This program was widely used by educators of deaf and hard of hearing children despite very little evidence to support its effectiveness, largely due to it being developed for this population of students (Easterbrooks, 2010; LaSasso & Mobley, 1997).

Nearly 20 years later, the *Reading Bridge* was designed to extend *Reading Milestones* for middle-school aged deaf and hard of hearing children. This program also uses basal readers that are intended to provide a "bridge from *Reading Milestones* to general reading materials at fourth- and fifth- grade reading levels .... *Reading Bridge* introduces vocabulary, language structures, and comprehension skills in the same spiraling, research-based approach as in *Reading Milestones* but at an accelerated rate and more advanced level" (PRO-ED, 2013b). While *Reading Bridge* is rooted in the research literature, it also does not have a strong evidence base demonstrating its

effectiveness. There is one study that provided incidental support for this program through a study to establish the psychometric properties of the Silent Reading Fluency Test (SRFT; Rose McAnally, Barkmeier, Vernig, & Long, 2008). This study included 101 deaf and hard of hearing middle and high school students and found that improvements on the SFRT were associated with *Reading Milestones* and *Reading Bridge* over the course of three assessment points in spring, winter, and fall. Therefore, Easterbrooks (2010) concluded, "considerable research is still needed to determine treatment efficacy of *Reading Milestones* and *Reading Bridge*" (p. 120).

The *Edmark Reading Program* is another highly structured reading program published by PRO-ED and designed for children that "need an alternative to phonics" (PRO-ED, 2013c). This program is centered on a "highly repetitive word recognition method" that "helps students view themselves as readers" (PRO-ED, 2013c). This is the longest standing curriculum, dating back to 1960, with the publication date of 1971 for Level 1 of the program (Sulzbacher, 2013). Although Easterbrooks (2010) noted two case studies of deaf students with additional disabilities on their website, it appears they have since been taken down. Other research on the effectiveness of *Edmark Reading Program* has been positive, however, these studies have focused primarily on children with intellectual disabilities and not hearing loss (Bijou, Birnbrauer, Kidder, & Tague, 1966; Birnbrauer, Kidder & Tague, 1964; Greene, 1966; Lent, 1968; Sulzbacher & Kidder, 1975, 1979; Vandever & Stubbs, 1977; Walsh & Lamberts, 1979).

The *Fairview Reading Program* is a program that was specifically designed for deaf and hard of hearing students to provide mental and linguistic frameworks that "allow

access and increasing fluency in English and ASL, and ease of movement between the two languages" (Fairview Learning Network, 2013a). The Fairview Learning Network considers the *Fairview Reading Program* compatible with Response to Intervention strategies and can be adapted to different sign systems including the range of English-based sign systems to bilingual language approaches that "make connections between English print and ASL through the use of conceptually accurate signing, code switching, and explicit teaching techniques and tools" (Fairview Learning Network, 2013a, para. 2). Research indicated that this program produced "an organized and consistent" approach to language input and use producing noticeable gains in students' reading skills and sign skills, as well as teachers' growth in reflective sign skills and ASL (Schimmel, Edwards, & Prickett, 1999, p. 298). In addition to the findings of this study, Fairview Learning Network cites teacher testimonials on their website provided by the Orange County Deaf Literacy Project in support of their curriculum (Fairview Learning Network, 2013b). While these testimonials ranged in length and content they exemplified the ASL to English connection such as a student independently discovering that the sign for "make" is not appropriate for the context of "make friends" and instead chose to use the sign "meet", as it was a conceptually accurate choice (Fairview Learning Network, 2013b).

There has been only one curricula created for hearing children that has been shown to have success with deaf children, *Reading Recovery*. *Reading Recovery* is a one-on-one reading intervention for first graders delivered by a specially trained teacher and based on the theories of Marie Clay (2005a, 2005b). There have been a few studies of effectiveness of *Reading Recovery* for deaf children that described adaptations to the very

structured *Reading Recovery* program that included, but were not limited to, focus on conceptually accurate sign language (i.e. Heenan, 2007; Charlesworth, Charlesworth, Raban, & Rickards, 2006). Although Heenan (2007) found support for the use of *Reading Recovery* with deaf children, the use qualitative case study methodology left much to be learned about the impact of the program on students' language and literacy outcomes (Easterbrooks, 2010). Charlesworth, Charlesworth, Raban, and Rickards (2006) found that the deaf children made gains comparable to the hearing children enrolled in the program in all areas of the Observation Survey of Literacy Achievement (Clay, 2006), except for the measure examining spoken reading of print (Charlesworth, et al., 2006). However, given that this study had a low number of participants (deaf=12, hearing=12) and only one literacy outcome measure, it only contributes modestly to the evidence base supporting this program for deaf children (Easterbrooks, 2010).

In conclusion, this section have summarized the research on the efficacy of the following reading programs with deaf children: *Reading Milestones*, *Reading Bridge*, *Edmark Reading Program*, *Fairview Reading Program*, and *Reading Recovery*. While these programs are all distinct in their approaches they are all highly sequenced, language based and focused on direct instruction of discrete skills (Easterbrooks, 2010). The research bases supporting these approaches is far from ideal, however, as it relies primarily on case studies, descriptive studies, and studies with a small number of participants. Therefore, in order to fully understand how children learn through various curricula, more extensive and targeted research is needed to, "identify [evidence-based

practices] and the specific children for whom each is effective" (Easterbrooks, 2010, p. 123).

Knowledge of Pedagogy: Lessons on Effective Vocabulary Instruction

In order to foster student learning and make informed decisions regarding instruction, teachers of deaf students must have content knowledge surrounding the pedagogy that is associated with effective vocabulary instruction for deaf children in the classroom as, "instructional method and style of teaching are crucial elements of effective teaching" for deaf children (Knoors & Hermans, 2010, p. 63). It is especially important to understand the instructional components and strategies that have been shown to have positive effects on early language and literacy outcomes.

Research has suggested that deaf children learn and process new vocabulary in a similar way to that of hearing children supporting the qualitative-similarity hypothesis (Paul & Lee, 2010). As a result, it has been suggested that the strategies used in general education can be applied to deaf children as, "the factors that contribute to reading success in hearing preschoolers also contribute to the reading success in [deaf] preschoolers" (Easterbrooks, 2010, p. 113). However, adaptations to the strategies used in general education may need to be made to address the specific needs of this population,

> Those who teach deaf students, whether in special or regular education classrooms, ideally have to adhere to all the general principles (instructional strategies and classroom management techniques) known to enhance the quality of instruction in general or regular education, in order to establish the best possible conditions for learning. Teachers of deaf students, however, need to do

> more. They have to adapt instruction to the highly diverse individual characteristics of deaf students in their classes. (Knoors & Hermans, 2010, p. 61).

Therefore, a hearing model of vocabulary instruction will serve as the foundation for this section, supplemented with instructional correlates for deaf children as identified by Easterbrooks (2010) and the specific linguistic considerations for deaf children learning a visual language like ASL. By connecting a hearing model of vocabulary instruction to the previous knowledge of the language learning of deaf children and the adult strategies used to promote that learning, the truly unique pedagogy used to promote learning for this population may be uncovered.

The Four-Part Vocabulary Program

The Michael Graves' Four Part Vocabulary Program (2006, 2009) is a comprehensive instructional framework built upon years of research in vocabulary learning for monolingual hearing children. Graves (2006) noted that he first began developing his program more than 20 years ago (Graves 1984, 1985), but it has evolved into the current framework through incorporating new research and the most current understandings of vocabulary. In recent years, specific effort has been made to include information related to diverse learners in the classroom, including dual language learners (Graves, 2009). This program is also very comprehensive in its presentation of curriculum considerations on the topic, as he proposes that comprehensive vocabulary instruction be approached by not one, but four distinct, yet intertwining, avenues at all ages: providing rich and varied language experiences; teaching individual words;

teaching word-learning strategies; and fostering word consciousness. Graves' holistic view of vocabulary instruction also moves away from the traditional classroom practices and reductionist perspectives for vocabulary, and presents a more, "authentic, meaningful, and integrated" approach that has been solicited by vocabulary theorists for some time (Nagy & Scott, 2000).

Providing rich and varied experiences. By engaging in rich and varied language experiences with young children, they are provided with a strong foundation for vocabulary learning and development (McKeown & Beck, 2004). As a large percentage of vocabulary words in the early years are learned incidentally, or from environmental exposure, having a vocabulary rich environment is particularly important for young children (Neuman, 2011). To accomplish this goal, Graves states that there have been specific strategies that have been shown to be effective in the research literature.

The first, and possibly most important, strategy is to engage students in rich discussion about an array of topics. By providing opportunities for rich discussion, sophisticated vocabulary and their meanings are routinely exposed to students. Another key strategy includes using read-alouds as a platform for promoting vocabulary growth, as being read to allows children a chance to make comments, ask questions, or develop new concepts into their repertoire. Shared reading is even more essential in the early years to developing word meanings in a targeted and purposeful manner.

During discussion and/or reading, Graves also noted that casually drawing attention to words and their meanings can also increase the incidental learning opportunities afforded to children of all ages. For linguistically diverse children and dual language learners, a focus on even basic vocabulary can be beneficial, as these children may have gaps in vocabulary that typical language learners may not.

Finally, Graves (2006) also discussed the importance of introducing various kinds of literature into the worlds of children, as a way to increase the variation of language experiences that children have. While this may be even more important with older children, even the youngest of children can benefit from exposure to different genres at an early age. In fact, the use of non-fiction reading material has been receiving an increasing amount of attention in the research literature with students of all ages (Duke, 2004).

Teaching individual words. Due to the large number of words that exist, it is impossible to teach all the words in the English language. Even so, Graves (2006) states that just because it is impossible to teach all words, it does not mean that it is without merit to teach some words (p. 6). While this direct instruction may look different at various age ranges, Graves points out some important characteristics that have been shown to promote word learning in the research literature. First, direct instruction of vocabulary words is considered most effective when given both definitional and contextual information. Strong context provides an anchor to the word meaning, while the definition helps students to pinpoint the specific characteristics that are associated with that word. The contextual information can be maximized when tethered with

activities designed to activate background knowledge that students already possess prior to the reading or discussion. For students who have prior experiences with the concept, it makes the meaning's association stronger, therefore helping with efficient acquisition of the new word. For children that do not have these experiences, they are exposed to an enhanced context to foster learning.

As the goal of word learning is to develop complete and nuanced understandings of word meanings, it is also noted that providing children with time to actively process new meanings is a strategy that allows for those deeper understandings to develop. Multiple exposures to new words in different contexts can also add to depth of understanding, as varied contexts may feature different aspects of the meaning for the students.

Beyond providing strong context, definitional information, and deep understandings, Graves (2006, 2009) also emphasized that word selection is an important part of the process of teaching individual words. An important consideration in word selection for Graves is to choose words that are key to understanding the reading or discussion at hand, or saliency and importance of the word. Graves also noted that teaching new labels for already possessed concepts should be complimented with teaching of new concepts simultaneously with new words. By pairing both word teaching strategies, the teacher is able to not only develop new concepts for children, but also to clarify and enrich the meanings of already known words. Finally, word frequency is also a key factor in the selection process, as teaching words that will be frequently encountered will allow students to maximize their learning.

Teaching word-learning strategies. Teaching word-learning strategies is the third component of this instructional theory, as it provides children with the tools to independently learn new words they encounter. Graves (2006) reports on three sets of pedagogical tools that can be used to teach these strategies: use of context, use of reference materials, and use of word parts. In his review of the research literature, Graves notes the primary strategy discussed on this topic is the use of context to determine word meanings. Incorporating ongoing classroom activities that help students to learn the use of context for understanding new words is considered an essential part of pedagogy for vocabulary development. Graves also indicates the importance to explore the role of polysemy, or multiple word meanings, when teaching.

In addition, Graves (2006) notes that children should be empowered to use reference materials to help ascertain word meanings when a word is unknown. These tools can be dictionaries, thesauruses, and technology. Although these tools can be beneficial, it is important to recognize the limitations of these tools for certain types of word learning and that teachers can inflate the importance of these tools to word learning ignoring other important strategies that will yield bigger return on learning, such as use of unlocking word parts to determine meaning.

In more recent years, the use of word parts, or morphology, in meaning generation has received more attention by researchers. By teaching children to use suffixes, prefixes, or root words to acquire new meanings, children are able to unlock whole word families by learning one word concept maximizing the learning of new future words. In terms of young children, however, Páez, Bock, and Pizzo (2011), remark that word patterns and

phonological strategies are also important parts of word-learning strategies that are important to vocabulary growth and development. This is especially true, as word-learning strategies are complementary to direct instruction of new words, as they can help to unlock new words for children that have not been explicitly taught.

Promoting word consciousness. In addition to word learning strategies, word consciousness can also promote children's ability to pick up new vocabulary in the future. Graves (2006) defines word consciousness as, "an awareness of and interest in words and their meanings" (p. 7). He reports that word consciousness is particularly important in vocabulary development, as children develop both a cognitive and affective stance towards words that are equally important to word learning (Anderson& Nagy, 1992). By fostering an awareness of words around children, an "appreciation of the power of words" can develop (p. 7), promoting the desire to learn and use new words as they are introduced to children, whether through discussion or reading as children develop. Effective word consciousness strategies include: developing metacognition about words, motivation to learn words, developing understanding of differences between spoken and written language, and an understanding of the nuances of meanings in words that make some word choices more appropriate than others with similar meanings. By focusing on developing deep and lasting interest in words, these students are empowered to figure out new word meanings and understandings on their own leading to the desire to increase word knowledge and vocabulary knowledge overall. Finally, Graves (2006) also indicates that word consciousness "exists at many levels of complexity and

sophistication" (p. 7) and therefore, can be used with both young and mature language learners alike.

Although it is necessary to engage in direct instruction of new vocabulary, it is impossible to teach all the words necessary for success in school. Therefore, promoting word consciousness, in combination with teaching word learning strategies, provides an essential layer to vocabulary instruction that promotes skills for independent learning of new words when encountered.

Instructional Practice for Deaf Students

Researchers have defined the term "effective instructional strategies" in different ways (Knoors & Hermans, 2010). Despite the range of conceptual frameworks employed to understand what constitutes effective instruction for deaf children, the number of studies available is relatively few (Easterbrooks, 2010, Easterbrooks & Stephenson, 2006; Easterbrooks, Stephenson, & Mertens, 2006, Marshark & Spencer, 2010). As a result, a very heterogeneous grouping of studies are often consolidated and applied to a range of ages, abilities, and school placements.

Despite that few investigations into effective language and literacy strategies for deaf children have been able to glean any causal link between instruction and practice, Easterbrooks (2010) argued that when viewing all the bodies of research together, there have been some instructional and theoretical correlates worth noting. In her review of the factors that have been shown to correlate with good reading instruction for deaf children, Easterbrooks identified five important instructional correlates for this population: teachers should be skilled in using the language of their students; explicit instruction of

both language and literacy is necessary; instruction should promote higher-order language use and critical thinking; scaffolding children's learning is important for instruction; and instruction should involve the use of visual supports.

The first instructional correlate that Easterbrooks (2010) identified was "that teachers should be skilled in using the language of their students" (p.121). Easterbrooks points out that this aspect of instruction has been acknowledged for general education, special education, and deaf education alike. In regards to deaf education, this principle covers the range of communication modalities and languages in which children may be communicating, "whether the teacher works with oral children, children who understand simultaneous communication, or children who use ASL, no excuse is acceptable for a teacher to communicate poorly with students" (Easterbrooks, 2010, p. 121). Therefore, it is important that deaf children have strong language role models in their classrooms.

This is particularly important to note for young deaf children, as research has shown that native or proficient ASL users use qualitatively different language strategies when interacting with young deaf children (Erting, Prezioso, & O'Grady Hynes, 1990; Holzrichter & Meier, 2000; Mather, 1990; Meadow et al., 1981; Reilly & Bellugi, 1996; Spencer, Bodner-Johnson, & Gutfreund, 1992; Spencer & Harris, 2006) or reading with young deaf children (Andrews & Taylor, 1987; Lartz & Lestina, 1995; Lieberman, Hatrak, & Mayberry, 2011). These strategies have been associated with higher levels of engagement with deaf children (Jamieson, 1994a, 1994b; Meadow et al., 1981; Spencer & Gutfreund, 1990), visually accessibility for deaf children (Erting, Prezioso, & O'Grady Hynes, 1990; Holzrichter, & Meier, 2000; Jamieson, 1994a, 1994b; Kantor, 1982;), and

learning by deaf children (Ackerman, Kyle, Woll, & Ezra, 1990; Jamieson, 1994a; Jamieson, 1994b). As such, strong language role models may provide a different language experience for young deaf children in classrooms.

It is important to note that at times this aspect of teaching has been a particularly heated issue in deaf education, especially in regard to the competencies of hearing teachers. There have been those who question the abilities of these teachers, who are predominately second language users of ASL, to be effective communicators for children who are learning the language (Lane, Hoffmeister, & Bahan, 1996). Even those who do not question the ability of hearing teachers to communicate well, still acknowledge that deaf teachers may have an advantage when working with deaf students as they, "may be more communicatively accessible to deaf students than instruction from hearing teachers" (Knoors & Hermans, 2010, p. 63).

Even though this principle could be used to group teachers solely on the basis of hearing status (hearing or deaf), strong ASL skills can transcend hearing status, as hearing teachers can be proficient in ASL. Furthermore, it has been acknowledged that language proficiency is only one piece of the instructional puzzle (Akamatsu, Stewart, & Mayer, 2002; Easterbrooks, 2010; Lang, McKee, & Connor, 1993; Marshark, Sapere, Convertino, & Pelz, 2008; Ramsey & Padden, 1998). In fact some have argued that, "sign skills are a necessary but insufficient prerequisite for effective teaching of deaf students" who communicate through ASL (Knoors & Hermans, 2010, p. 63).

The second instructional correlate noted by Easterbrooks (2010) was that explicit instruction of both language and literacy is necessary. While children who are acquiring

their first language at home may learn language incidentally, the evidence is increasingly pointing to the need of TODs to engage in strategies that are targeted and explicit in nature. This is particularly important for deaf children who, "in the absence of a sufficiently developed first language, proficient literacy will not develop without explicit instruction" (Easterbrooks, 2010, p. 121).

One aspect of language and literacy that has evidence specifically supporting the use of direct instruction is vocabulary (MacGregor & Thomas, 1988; Paatsch, Blamey, Sarant, & Bow, 2006). This finding is consistent with the body of research with other student populations, as well as the Four Part Vocabulary Program (Beck, Kucan, and McKeown, 2002; Graves, 2006, 2009). Vocabulary is not the only area that has been shown to need explicit instruction, however, as the explicit teaching of complex reading skills such as making inferences, drawing conclusions, and context clues are also areas of literacy that have evidence supporting explicit teaching (Garrison, Long, & Dowaliby, 1997; Jackson, Paul, & Smith, 1997; Schirmer & Woolsey, 1997; Walker, Munro, & Rickards, 1998).

The third instructional correlate is that instruction should promote "higher-order language use and critical thinking" (Easterbrooks, 2010, p. 121). Reading skills include everything from print recognition and decoding to the comprehension and understanding of text. For deaf children, the more advanced comprehension skills require the ability to connect various pieces of the story, background knowledge, and making inferences about the passages to move beyond literal interpretations of the story at hand (Garrison et al., 1997; Jackson et al., 1997; Andrews, Winograd, & DeVille, 1994; Schirmer, 2003;

Schirmer & Williams, 2011; Straussman, 1997; Walker, et al., 1998). Therefore, deaf children need to be exposed to instructional strategies that promote these higher-order skills (Easterbrooks, 2010; Schirmer & Williams, 2011).

For young deaf learners within limited ASL proficiency, this may mean building background knowledge, modeling, and providing opportunities for practice making predications and inferences in text (Easterbrooks, 2010; Knoors & Hermans, 2010; Schirmer & Williams, 2011). These strategies can be applied in a variety of educational activities including shared reading and writing, use of technology, use of graphic organizers, and reading in the content areas (Easterbrooks & Stephenson, 2006; Easterbrooks, Stephenson, & Mertens, 2006). While this evidence base has included elementary aged children or older in a variety of reading activities, they are consistent with literature on vocabulary instruction (Graves, 2006) and vocabulary instruction for young learners (Páez, Bock, & Pizzo, 2011).

Easterbrooks (2010) identified scaffolding children's instruction as the fourth instructional correlate. Deaf children, like hearing children, can benefit from instructional scaffolding to increase their skills both linguistically and cognitively (Easterbrooks, 2010). Using Vygotsky's (1978) concept of the Zone of Proximal Development (ZPD), children are met with their optimal level of support and those supports are gradually lowered until they can perform the skill independently. In fact, research has shown that providing systematic scaffolding within the individual child's instructional level, deaf children can acquire new concepts and grow to use them independently, or with less support from the teacher (Jamieson, 1994a, 1994b).

This instructional practice is especially important due to the heterogeneous nature of this population and the frequent mixed-ability groupings in classrooms for deaf children (Easterbrooks et al., 2006). Using the ZPD, educators can have a systematized way of understanding the children in their classrooms, as "an important first step needs to be the recognition and acceptance of those differences among deaf students …. that are important for academic learning" (Knoors, & Hermans, 2010, p. 65). From there, teachers can move along the continuum of high to low instructional support until the children can demonstrate independent mastery (Easterbrooks, 2010).

In mixed-ability groupings, this may be especially hard, however, as meeting every child at a different instructional level is difficult (Easterbrooks, et al., 2006). Consequently, Knoors and Hermans (2010) indicate that there may be limits to the adaptations and varied levels of support a teacher may be able to offer in certain settings. Therefore, they have argued that smaller groups with more homogeneous constitutions may enhance the ability to use this instructional technique to its fullest (Knoors, & Hermans, 2010).

Finally, the last instructional correlate was the use of visual supports is important for learning (Easterbrooks, 2010). Providing visual supports is a common practice in general and special education (Easterbrooks). There are many different ways to incorporate visual supports into instruction and these strategies may differ in classrooms for deaf children of different ages or ability levels (James, Abbott, & Greenwood, 2001; Kalgren, 1992; Luckner, Bowen, & Carter, 2001; Luckner & Humphries, 1992; McIntosh, 1995; Easterbrooks, & Stoner, 2006). However, there is limited evidence for

which strategies are the most effective with various learner groups (Easterbrooks & Stoner, 2006).

Even so, deaf children are visual learners (Hauser, Lukomski, & Hillman, 2008). As such, they may particularly benefit from using visual strategies (Easterbrooks, 2010; Hauser, et al., 2008; Easterbrooks & Stoner, & 2006; Schirmer, 1995). Not only may deaf children benefit from use of visual strategies in the classroom, it may be that these strategies should be privileged for teaching children who are deaf, "instructional strategies that support visualization or use of visuospatial strategies for comprehension, retention, and memory should receive primacy in the teacher's arsenal" (Easterbrooks, 2010, p. 122).

In conclusion, the research on instructional strategies is limited, however, there are some instructional and theoretical correlates that have been documented. Easterbrooks (2010) identified five key correlates are: teachers should be skilled in using the language of their students; explicit instruction of both language and literacy is necessary; instruction should promote higher-order language use and critical thinking; scaffolding children's learning is important for instruction; and instruction should involve the use of visual supports. These correlates contribute to the foundation for understanding effective language and literacy instruction and may inform teachers understanding of teaching language skills including those related to vocabulary development.

Native ASL User Input Strategies

Given that the instructional correlates associated with reading incorporate research with a wide range of deaf children and adults including those of diverse ages and

abilities, these correlates need to be viewed through the lens of child development. This is especially true for the early childhood years, as the National Association for the Education of Young Children (NAEYC) contends,

> By attending to the multiple domains of development and the individual needs of those in their care, early childhood professionals who employ developmentally appropriate practices engage young children in rich out-of-home early learning experiences that prepare them for future learning and success in life (NAEYC, 2009, p. 23).

Therefore, it is important to delve into the language and literacy correlates and considerations that are most promising for young deaf children. Therefore, for those children who are engaging in first language acquisition of ASL, it is especially important to consider the body of knowledge on native language strategies that are used to facilitate language development.

Research has shown that hearing parents of hearing children modify their language for their infants and toddlers (i.e. Snow, 1977). This modified language, or child-directed speech, has been shown to provide accessibility to language structures in order to facilitate language development. The body of literature on mature adult ASL users and their interactions with young deaf children has revealed similar findings regarding the importance of modifying language in ASL for young deaf language learners (Mather, 1990; Spencer & Harris, 2006). While the concept of language modification to promote access is similar between deaf and hearing children, the use of a spoken versus visual language makes the features of child-directed sign different from those of child-

directed speech. For example, unlike hearing children that can listen to language while visually attending to something else, deaf children need to engage in visual attention with their language partner in order to receive language input from others. Furthermore, this visual attention needs to shift in tandem with this partner, tracking gaze from the referent (i.e. object, book, etc.) to their partner to make connections between language and the world around them.

Since the 1980's, research has captured how mature ASL users modified language to facilitate visual attention and linguistic access. Given the wide age range of early childhood and the varying language ability levels of young deaf children, this section will be organized in two categories: early conversation strategies used by deaf parents and compared to language strategies used by hearing mothers, and specific language strategies used by deaf parents and teachers in shared reading activities.

Early Language Strategies

In their holistic investigation regarding the features of child-directed signing, Holzrichter and Meier (2000) examined the signing of four deaf-parents who had deaf infants from 8-12 months old. All parents were at least second-generation deaf and native signers. Each dyad was videotaped at least four times over two months. Results indicated four major categories of strategies parents used to make the signs accessible to the young children: 1) increased cyclicity (repetitive movement cycles), 2) increased duration (the length of time used before ending a sign), 3) altered location of sign to accommodate line of sight, 4) and use of clearly articulated signing.

Specifically, researchers found that when the participants were not looking at their parents, their parents moved their hands into the line of sight of the child 28 percent of the time and made the sign directly on the child's body (tactile input) 48 percent of the time to facilitate language input for the child. When their children were looking at them, parents often modified their signs to stay within the child's visual field, as opposed to producing signs in their typical locations for 59 percent of the time. In addition, 37 percent of cyclical signs had more than three repetitions, which is uncommon in ASL, as repetitions are fixed features of grammar typically ranging from 1-3 repetitions per sign. The number of repetitions was considered a strategy to allow the child to engage with the sign for a prolonged period of time. This type of increase in exposure to the sign was also seen in the increased duration, or extending the time it takes to make a sign, that was also a common modification made by parents (61% of the time). In regard to sign size, there was not a big difference in size noted by the researchers; however, the signs were noted as being less casual than adult directed discourse. Instead the authors remark that the, "parent's signs are comparable to especially clear signing" or what would be the equivalent to clear articulation in speech (Holzrichter & Meier, 2000, p. 34). This study had important implications in understanding primary language acquisition, as it focused specifically in the features of child-directed ASL that differed from traditional ASL discourse.

In another investigation focusing on the features of child-directed signs, Erting, Prezioso, and O'Grady Hynes (1990) reported on an in-depth analysis of eight deaf mothers' use of the sign MOTHER with their children between the ages of 5 and 23

weeks. They analyzed 27 different MOTHER signs for nine attributes: distance of the mother from the infant, handshape, location, orientation of the palm, type of movement, number of movements, accompanying, nonmanual behaviors, maternal affect, and duration of the sign (p. 102). Findings were consistent with Holzrichter and Meier (2000), as the sign for mother was made longer in duration by repeating the movement, signing in closer proximity to the child, and orienting for the full handshape to be visible to the child. In addition, these researchers also noted that the mothers maintained eye contact for the duration of the sign and used positive affect with these young children.

In order to better understand the role of affect in child-directed signing, Reilly and Bellugi (1996) conducted a study examining the facial expressions of 15 deaf parents engaged in naturalistic signing with their deaf infants and toddlers (age 1.0 to 2.8). For this study, video of 26 sessions ranging from 60-120 minutes long were transcribed by a deaf signer and coded by a coder certified by Facial Action Coding System (FACS). FACS is a "comprehensive, anatomically based system for coding facial expression" (p.226) created by Ekman & Friesen (1980). It is designed to minimize subjective evaluations of affect by focusing on more than 40 targeted individual muscle movements that are indicative of affect.

When examining the affect of the parent participants, Reilly and Bellugi (1996) used FACS to code their use of wh- questions with their children. Results indicated that the child's age was an important factor in the parental use of affect during wh- questions. Specifically, there were 255 wh- questions addressed to the deaf children by their parents. Of those, only 141 met the specific criteria for ASL grammar, leaving 114 without

grammatical markers. When age was accounted for, it was shown that for participants under the age of 2.0, more than 90 percent of the questions were ungrammatical, or lacking the furrowed brow that is associated with wh- questions in ASL. After the age of two, a dramatic shift appeared where the majority of wh- questions were now asked with the appropriate grammatical expression (furrowed brow). Furthermore, when longitudinal data was analyzed, this difference was visible regardless of whether the data was examined in a cross-sectional (different parents) or longitudinal design (same parents over time). Therefore, it was concluded that before age two parents demonstrated a preference for an affective strategy of communication, and made their communicative decisions based on a preference for positive affect rather than grammar, "rather than convey a potentially conflicting messages to their younger toddlers, parents rely on the dominant communicative system of that developmental period, affect" (p.235). After age two, however, formal ASL language features began to emerge, as "parents apparently assume the child is capable of disambiguating the linguistic message in spite of potentially conflicting data" (pp. 235-236).

A similar, age related pattern was also found by Kantor (1982) in her investigation of language modulation in ASL for young deaf children. This researcher examined the language of two deaf mothers interacting with their deaf children aged 12 and 30 months over the period of 10 months. Observations were conducted every three weeks and coded for 2,035 interactional units. These researchers coded observational data for seven aspects of verb modulation that they created called the Verb Modulation

by Index Reference in order to look at the presence of modulation in language features for these two mothers.

Results were consistent with Holzricher and Meier (2000), indicating that the mothers would modify their ASL to produce a simplified, more linear, and clearer language structure for their young deaf children. Specifically, mothers did not use the rich modulation system present in the ASL grammatical structure that is typical to adult conversation. Instead these mothers engaged in three distinct simplification strategies to break the complex language units into simple components: 1) engaging the child's visual field, 2) using pointing as a replacement for signs, and 3) producing unmodulated verbs.

The first strategy was to bring the referent object into the child's visual field and was more prevalent for the 12 month old (20% of the time) than for the 30 month old child (3% of the time; Kantor, 1982). Second, the mothers used pointing extensively, both as a sign-phonological replacement for other handshapes, as well as to introduce semantic and grammatical features into the conversation. Finally, the results also indicated that mothers did not modulate verbs, or use tenses, in their conversations with the young children. These strategies were also seen to differ in prevalence for the two mothers. For the mother of the 12-month old, nearly 100 percent of the interactions were POINTs, or pointing to a referent person or object, while the mother of the 30 month old only used POINTs 66 percent of the time. Although there are many factors that may affect why these mothers differed in their discourse patterns, when taken into account with the results of Reilly and Bellugi (1996), it may be that parents introduce more

advanced grammatical concepts into their natural language interactions altering the nature of the child-directed signing to correspond with the child's age.

To further understand the nature of the language strategies for young deaf children, Meadow, Greenberg, Erting, and Carmichael (1981) not only examined the language that deaf parents use with their children, but also compared those language strategies with strategies used by hearing parents of deaf children. These researchers investigated the interactions among mothers and their deaf children age 3-5 years. These researchers not only included deaf mothers of deaf children, but also included a comparison sample of hearing mothers and their hearing children. Furthermore, these researchers split the hearing mothers by communication strategy: simultaneous communication or oral-only communication. The results were four distinct mother-child dyads: seven deaf mothers of deaf children using ASL, 14 hearing mothers of deaf children using oral-only communication, 14 hearing mothers and deaf children using simultaneous communication, and 14 hearing mothers and their hearing children.

Each mother-child dyad was videotaped in free play situations in a lab setting where play materials (i.e. toys) were provided. Results indicated that there were similarities in both social and linguistic interaction of the dyads that consisted of deaf mother and deaf children with those of hearing mothers and their hearing children. These two groups showed marked differences in the complexity of communication patterns with the two groups of hearing mothers and their deaf children. These homogeneous pairs exhibited communication patterns that were more extended, complex and elaborated than the hearing mothers of deaf children regardless of the communication strategy employed.

Of the hearing mothers, however, those who used simultaneous communication were more closely aligned with the aforementioned dyads as they exhibited slightly more complex communication interactions than the hearing mothers who engaged in oral-only communication. Specific strategies that the deaf mothers of deaf children and hearing mothers of hearing children used included engaging their children in a large number of questions, fewer object based references, and increased symbolic language. Furthermore, these two groups were able to initiate and sustain linguistic interactions for a longer period of time, "embroidering and elaborating on ideas in a reciprocal fashion, reflected in the developmentally more mature conversational and interactional style in which these two groups of mothers and children were able to relate" (Meadow et al., p. 465).

These findings were consistent with those of Spencer, Bodner-Johnson, and Gutfreund (1992) who also investigated the interaction patterns between various mother-child dyads to examine maternal responsiveness, specifically the language strategies parents used when children are attending to a novel object rather than their parent. For this study, the researchers compared interactions of three mother-child dyads: four deaf mothers of deaf children who used total communication, three hearing mothers of deaf children who used oral-aural communication, and seven hearing mothers of hearing children who used spoken English. All of the children were between 12 and 13 months of age. Each dyad was videotaped and specific interactions were selected for analysis based on whether the children were engaged in "object-gaze", or looking at an object rather than attending to the mother. These object-gaze segments were then analyzed to determine the presence of four aspects of maternal responsiveness: mother provides

language input regarding the object; mother waits while the child looks at the object; mother attempts to redirect the child's attention elsewhere; and mother continues on with the behavior she was exhibiting prior to the child focusing on the object.

Results indicated that there were similarities within each group of dyads, however, the three groups of mothers showed different preferences for strategies from each other (Spencer et al., 1992). For example, the hearing mothers of deaf children spent more time trying to redirect their child's attention than the other two groups. In addition, the deaf mothers of deaf children spent significantly more time waiting for their children to finish looking at the object than the other two groups. Finally, the hearing mothers of hearing children devoted more time talking to the children at the same time the child looks at it. Furthermore, the deaf mothers of deaf children would often provide their responses after the child finished looking at the object (sequentially) while the hearing mothers provided the response during the child's gaze at the object regardless of his or her hearing status (simultaneously).

Similar to Meadow and colleagues (1981), when these interactions were coded for frequency of responses, it appeared that there were similar amounts of responses from deaf mothers of deaf children and hearing mothers of hearing children (Spencer et al., 1992). However, there were markedly fewer attempts to respond for the hearing mothers of deaf children. Therefore, it appeared that the hearing status of mothers and children resulted in not only qualitatively different adult-child interactions, but also differences in the frequency of interactions.

Spencer and Gutfreund (1990) examined the specific differences in maternal directiveness, or the level of conversational control mothers exhibit, for parents and children matched or mismatched on hearing status. They examined interactions in four sets of mother-child pairs: four deaf mothers of deaf children, seven hearing mothers of hearing children, three hearing mothers of deaf children, and five deaf mothers and hearing children. Three-minute video segments of mothers interacting with their 12-month old children in a naturalistic lab setting were analyzed for this research. As in the study these authors conducted with Bodner-Johnson (1992), the hearing mothers of hearing children and deaf mothers of deaf children showed similarities in their interaction patterns, but differed in from the patterns exhibited by hearing mothers of deaf children.

Specifically, deaf mothers of deaf children and hearing mothers of hearing children allowed their children to have more autonomy in choosing a focus of conversation than the hearing mothers of deaf children (Spencer & Gutfreund, 1990). For example, hearing mothers of deaf children engaged in more controlling behaviors (i.e. controlling the topic of conversation, redirecting children to their focus, etc.) than the others. Furthermore, hearing mothers of deaf children had the lowest amount of time waiting for the child to finish looking at an object before responding or redirecting. As such, they were the least likely to allow their children to establish a new focus of attention instead insisting for the child to focus on the topic or object that the mother desired.

Interestingly, Spencer and Gutfreund's (1990) study was unique in that it included a group of dyads of deaf mothers of hearing children. For this group, the deaf mothers

provided more wait time before responding than the hearing mothers of hearing children, but did not provide quite as much wait time as the deaf mothers of deaf children. The authors considered this pattern related to the visual nature of ASL, as it was present regardless of whether the deaf parent participants were working with deaf children or hearing children (Spencer & Gutfreund, 1990).

One of the major limitations of the whole set of studies examining adult-child interactions is the assumption that these deaf children of deaf parents are actually learning more language than those with hearing parents. While this assumption is based on research that indicates typical language development for deaf children of deaf parents (i.e. Meadow, 1968), the majority of these studies do not actually look at corresponding child language development in connection to the language strategies used by the mothers. Investigations led by Ackerman, Kyle, Woll and Ezra (1990) and Jamieson (1994a, 1994b) attempted to contribute to not only the knowledge about adult-child interactions, but also how those interactions may correspond with various levels of language development and learning.

In a preliminary study, Ackerman, Kyle, Woll and Ezra (1990) investigated the language development of deaf and hearing children from birth through age three. This study included four groups of parent-child dyads: five deaf parents of deaf children, eight deaf parents of hearing children, eight hearing parents of hearing children, and five hearing parents of deaf children. The parents of deaf children and the deaf parents of hearing children were video recorded twice a month in their child's first year and once a month thereafter until they turned three. The hearing parents of hearing children were

only recorded through age one at the time of this study. In order to connect parents' language strategies with their development, parents were asked to report on the language level of the children in addition to the video recordings.

For the signing children, first signs were reported at about 11.0 months of age with the exclusion of the sign bye-bye which was reported to develop earlier (Ackerman, Kyle, Woll, & Ezra, 1990). For hearing signers, their first signs were reported to be 11.4. Interestingly, many of the reported signs by deaf mothers resembled the gestures reported by hearing mothers. Researchers examined the first 25 signs reported by the deaf mothers and found that the majority were object signs (64-88%) and occurred primarily during direct tuition by the deaf mothers (Ackerman, Kyle, Woll, & Ezra).

In order to fully understand the child's utterances, the researchers examined the maternal role in modeling and soliciting utterance by the child, as well as the prevalence of spontaneous utterances by the child (Ackerman, Kyle, Woll, & Ezra, 1990). They found that spontaneous utterances were the most prevalent for all children observed, however, mothers also engaged in soliciting utterances and modeling correct versions of the signs. They also found that mothers were more likely to solicit and model in the second part of the second year than with the younger children as, "there are patterns that seem to correspond to the developmental phase of the child" (Ackerman, Kyle, Woll, & Ezra, p. 338). These findings are consistent with previously mentioned studies that indicated parents shift their language strategies as children grow older (Holzreichter & Meier, 2000; Kantor, 1982; Reilly & Bellugi, 1996).

To further understand the connection between hearing status group, interaction, and development, Jamieson (1994a, 1994b) studied the interactions of nine mothers and their children by comparing interaction characteristics used to establish joint attention during a structured teaching activity. There were three sets of dyads in this study: deaf mothers of deaf children, hearing mothers of hearing children, and hearing mothers of deaf children. Videotaped parent child interactions of mothers attempting to teach their children how to assemble a wooden pyramid consisting of 21 interlocking pieces were analyzed. In this study, investigators were looking at parental differences based on hearing status. The participating children were also older than those in the previous studies reviewed, as children had at least two years of schooling and were between 4 years 9 months and 5 years 5 months of age. Results indicated that while there were some consistencies across the three groups of dyads, the interactions there were important differences in three aspects of interaction: attention getting, direction of gaze, and delivery of message.

All three dyad groups tended to use the block manipulation and demonstration as a primary means of teaching with lesser use of language during the interactions (Jamieson, 1994a, 1994b). They also appeared to use more similar strategies at the start of the lesson, however, over time hearing mothers of deaf children engaged in increased attempts to gain the child's attention. These attempts primarily consisted of repeating the child's name verbally and saying "pay attention" supplemented by an increased use of gesture, block manipulation, and pointing.

In contrast, the author notes, “the visual orientation of the deaf mothers and deaf children differs markedly from that of the other subjects” (Jamieson, 1994a, p.442), as the deaf mothers of deaf children engaged in more visual and kinesthetic strategies to establish joint attention with their child (i.e. moving into the child’s visual field, touching the child’s arm or face, etc.). Furthermore, these mothers were more likely to intervene visually to give ongoing instructions to their child during the task (i.e. lowering their signs to be within the child’s visual field) despite both groups frequently looking at their child’s faces to gauge comprehension of the task.

One of the most important findings from these studies was that the hearing mothers of hearing children used a simultaneous auditory and visual approach to teaching their children, or talking and attending to the blocks at the same time (Jamieson, 1994a, 1994b). The deaf mothers of deaf children, however, were consistent in obtaining the child’s attention prior to delivering instructions to the child. These mothers also worked in a sequential approach, moving back and forth between language and demonstration in a logical way. These findings were similar to those of Spencer and Gutfreund (1990) also supporting the theory that deaf mothers use a sequential, structured pattern of waiting until the child is accessible before providing the language they want the child to absorb.

Given that the language appeared less accessible for deaf children of hearing mothers, it was no surprise that Jamieson (1994a, 1994b) found a marked difference in the children’s learning of the block task. Despite the same level of parent-child engagement across all three groups, the hearing children of hearing mothers and the deaf children of deaf mothers demonstrated increasing competence at the task over time, while

the deaf children of hearing mothers did not. It appeared that even though the deaf children of hearing mothers were engaged by their mothers at the same level as the other children, this engagement did not result in correct constructions of the blocks or understanding by the children.

Given that ASL is the focus of this research, only studies including a focus on parents who use ASL were included in this review. However, there are many different kinds of sign languages across the world and similar investigations into parental interactions have been conducted for other types of visual languages. Interestingly, similar findings regarding parents who engage in other visual languages such as Japanese Sign Language (Masataka, 1996), Flemish Sign Language (Loots & Devisé, 2003), and British Sign Language (i.e. Harris, 2001; Harris & Mohay, 1997) have been documented, indicating that the visual nature of the language is truly an important aspect of language input for young deaf children across the world.

Shared Reading Strategies

Shared storybook reading is a common early childhood practice for all children (Justice & Piasta, 2011). Furthermore, the National Reading Panel (2000) reported that shared reading is one of the best practices for young children to assist with acquiring early language and literacy skills. Therefore, it is important to investigate the body of literature that examines specific strategies deaf parents use to develop early literacy skills through shared reading experiences.

The Laurent Clerc National Deaf Education Center at Gallaudet University supports the practice of shared reading with young deaf children. The resulting program,

the Shared Reading Project (SRP), “is designed to teach parents and caregivers how to read to their deaf and hard of hearing children using American Sign Language, and to use strategies to make book sharing most effective” for deaf children (The Laurent Clerc National Deaf Education Center, 2013, para. 1). Shared reading through this program is based on 15 research-based principles that were discovered by investigating what deaf parents use when reading to their young deaf children (Schleper, 1996):

1. Deaf readers translate stories using American Sign Language.
2. Deaf readers keep both languages visible (ASL and English).
3. Deaf readers are not constrained by the text.
4. Deaf readers re-read stories on a storytelling to story reading continuum.
5. Deaf readers follow the child's lead.
6. Deaf readers make what is implied explicit.
7. Deaf readers adjust sign placement to fit the story.
8. Deaf readers adjust signing style to fit the story.
9. Deaf readers connect concepts in the story to the real world.
10. Deaf readers use attention maintenance strategies.
11. Deaf readers use eye gaze to elicit participation.
12. Deaf readers engage in role-play to extend concepts.
13. Deaf readers use ASL variations to sign repetitive English phrases.
14. Deaf readers provide a positive and reinforcing environment.
15. Deaf readers expect the child to become literate.

These 15 principles draw on the conclusions of studies examining the ways that native ASL users engage their children in shared reading. As noted previously, instruction with young children may be especially informed by this topic. Therefore, this sub-section is a more in-depth review of the studies that inform these 15 key reading principles.

In a study of reading strategies of deaf parents with their young deaf children, Lartz and Lestina (1995) investigated the language of six deaf mothers used when reading to their preschool-aged deaf children (3-5 years). These mothers were videotaped reading the same book to their child in a naturalistic setting. Using an iterative coding scheme, the authors discovered six specific language strategies that were common among the deaf mothers when reading to their children. While each mother varied on their proportion of time spent using these strategies, consistencies across mothers in each were observed.

The first strategy noted was that the mothers signed directly on the book or picture itself during the reading to include both the sign and the picture within the child's line of sight at the same time. The second was that mothers clarified the text through a demonstration of an action that was found in the book either within the text or from a picture. Although the third strategy was used more infrequently than the first two, the mothers were also observed connecting the story to an example or event to which the child relates, or using the child's background knowledge to develop the concept. As with the studies on conversational language strategies, five of the six mothers were observed consistently securing the child's attention before making an utterance. The fifth strategy

observed was the use of physical movements and facial expressions to demonstrate the personalities of different characters in the book. This strategy was compared to the use of vocal inflections to establish prosody when reading orally. Finally, the five out of the six mothers relied on facial expressions as a means of asking questions about pictures in the book.

Similar strategies were also reported by Andrews and Taylor (1987) in their investigation on the specific strategies that one hard-of-hearing mother used with her 3 ½ year old son. For this research, the mother and son were videotaped while engaging in a shared reading event for approximately 45 minutes. During the reading the mother used a combination of ASL, spoken English, and English-based signing. Her son used ASL without voice for the vast majority of his interactions. Results indicated that there were 14 language strategies used by the mother across four major categories: confirmation of child's understanding; attention to the book and its content; specific language input; and targeted concept development.

To confirm a child's understanding, the mother engaged in explanations, related the story to their child's experiences, confirmed when their child made a response, commented on the child's response, commented on the text or picture, and requested an action from the child. When focusing attention on the book and its content, the mother used pointing, placed her fingers on the relevant text, or used physical interaction (i.e. touched the child) to illustrate a concept. To provide specific language input, the mother labeled a word or picture, used more formal signed English with pauses to emphasize the text to sign connections, and prompted the child to read specific piece of print. Finally, to

engage in concept development, the mother used questioning strategies to push the child into thinking about the characters and events in the story. While this parent engaged print more often than the parents, many of the same language strategies were used to develop understanding such as: engaging the pictures, relating to the child's background knowledge, physical demonstrations and interactions, and elaborations regarding the story content (Lartz & Lestina, 1995).

In addition to examining the parental language strategies used by deaf parents of deaf children, Akamatsu and Andrews (1993) also investigated the kinds of activities in which parents engage their young children to expose them to early literacy concepts. Specifically, these authors investigated one deaf child's developing literacy from age two through five. For this study, the researchers videotaped literacy interactions between this child's deaf parents and him once a month for the duration of three years. Using a Vygotskyian (1978) framework, these interactions were analyzed for the types of activity and strategies that parents used to develop literacy. The types of literacy activities observed included reading books with adults, reading alone, playing with alphabet cards, discussing environmental print, discussing print on paper money, listening to a book being read by a sibling, scribbling on paper, writing letters or words, letter naming and reading fingerspelling. The strategies used to facilitate literacy development were eye gaze, pointing, signing directly on pictures to use them as pro-forms (i.e. pronouns, pro-locatives, etc.), and using harmony in sign movement similar to repetition or intonation used to establish patterns in the text. Finally, as the child grew older, the discussion switched from being predominantly focused on pictures to incorporating discussion about

text attaching signs to English print and using fingerspelling as an additional bridge to the printed word for the child.

In the studies examining conversational language between parent and child, it was shown that the parents used visual language strategies and facial expressions to make the language engaging for young deaf children and infants. This study in addition to those reported by Andrews and Taylor (1987), as well as Lartz and Lestina (1995), extended those early language strategies by engaging in strategies that are consistent with prosodic reading. For example, the repetitive movements in sign add a "sing-song" quality to the sign that is appealing to young children. In addition, the attachment of movement to pictures or posture to characters provide an increased level of engagement that is similar to the vocal inflections that a hearing parent may use when reading to a hearing child.

To further examine the similarities and differences between deaf parents of deaf children and hearing parents of hearing children Lieberman, Hatrak, and Mayberry (2011) examined the interactions between four mother-child dyads with children ranging in age from 1.9 through 3.7 years. These children also had at least one deaf parent and had at least one deaf sibling, making ASL the language of the home. Also included in this analysis was a control group of hearing mother-child dyads that were obtained from the CHILDES database and matched as closely as possible to the ages of the deaf child participants. Both groups were observed engaging in shared book reading and free play in a naturalistic setting. In addition, as with previous studies (Ackerman, Kyle, Woll, & Ezra, 1990; Jamieson, 1994a, 1994b), this was the only study to include data on the child's early language and literacy skills as part of their analysis. For three of the four

deaf children, the MacAurther Communicative Developmental Inventory (ASL-CDI; Anderson & Reilley, 2002) was also used to document parental reports of vocabulary development.

During the book reading, researchers documented the eye gaze shifts of the children from the book to the mother and from the mother to the book. It appeared that for the three deaf children with ASL-CDI scores, the number of eye gaze shifts increased as the number of reported signs increased, although the sample size was inadequate to perform any statistical analysis on the data. Furthermore, analysis showed that the child's gaze shifts were preceded by one of the five behaviors: linguistic prompt by mother, gaze shift of mother, physical prompt by mother, child led prompt, or no prompt (spontaneously). Interestingly, the majority of the shifts were attributed to direct behaviors by the mother (70%). Furthermore, between the age of 2 ½ to 3 years, children appeared to engage in more sophisticated and frequent gaze shifts.

For the hearing children, they spent the majority of the time looking at the book and not the mother, which was noted as much less time looking at the mother than the deaf children. They also engaged in very few eye gaze shifts (range 0-12) compared to the deaf children (range 67-112). The gaze shifts for the deaf children appeared purposeful and motivated by specific maternal behaviors. The authors posited that these behaviors helped to guide the deaf children in making a gaze shifts that facilitated more meaningful and organized linguistic input based on the visual nature of the language. Furthermore, these findings were consistent with those by Jamieson (1994a, 1994b),

which showed a more sequential rather than simultaneous strategy for language input by the parents.

Based on studies examining the language strategies used by native language users of ASL and their children, some researchers have thought that examining the nature of language input of mature ASL users may lead to strategies that can increase the quality of language input provided to young deaf children (Mohay, Milton, Hindmarsh, & Ganley, 1998). In particular, it has been argued that hearing parents and teachers of deaf children could learn from the language strategies employed by deaf parents, as "it would seem logical that intervention programs for deaf children should include strategies used successfully by deaf parents to facilitate communication and aid the language acquisition of their children" (p. 78). As such, these language strategies may have the potential to be informative for instructional purposes, especially in the absence, or in complement, of research on teaching itself.

Conclusion

Bransford et al., (2005) created a framework for teaching that includes three key areas: knowledge of learners, knowledge of curriculum, and knowledge of teaching. For TODs who use ASL to teach vocabulary, this framework includes a variety of literature that feed into these three areas. Combining these areas together establishes a complex framework for understanding the knowledge and practice of vocabulary instruction that underlies this investigation. In order to fully comprehend these many pieces of this framework, the previous review of the literature, including key findings of each section

have been summarized and consolidated into three tables: knowledge of learners (Table 1), knowledge of curriculum (Table 2), and knowledge of teaching (Table 3).

To possess *knowledge of learners* within the context of this investigation, there are two bodies of knowledge that may inform teacher practice. First, it is important for TODs who instruct in ASL to have working knowledge regarding features of ASL, as it exhibits distinct characteristics that are not present in spoken English (Newport & Meier, 1985). In addition, it is also important for these teachers to understand the nature of lexical development for deaf children and how that development compares to the development of lexicon in hearing children. The features of ASL and key findings on lexical development for deaf children are outlined and summarized in *Table 1: Knowledge of Learners*.

Table 1

Knowledge of Learners

Component	Summary
Features of ASL	• Signs may resemble the referent (Iconicity) • Individual signs can be broken into smaller components that when put together constitute an individual sign (Phonology/Cheology) • In addition to traditional parts of speech, ASL uses special relations and facial expressions as syntactic regulator of language (Syntax) • Spatial relations, handshapes, and classifiers are components of ASL morphological (Morphology)
Lexical Development in Deaf Children	• Rate of acquisition of deaf children of deaf parents mirrors hearing children of hearing parents • Rate of acquisition of deaf children of hearing parents is behind that of typically developing hearing children (trajectory starts off lower and grows at a slower rate) • Underlying cognitive processes are generally similar for acquisition of new words between deaf and hearing children

For *knowledge of curriculum*, it is essential for TODs to have knowledge surrounding the overarching language philosophical debate that has been present in the field of deaf education for more than 150 years. As this debate is deeply rooted in the history of the deaf experience and Deaf culture in the United States, it has important implications for the field of teaching, as it has placed the nature of classroom language quality in the forefront of the discourse about teaching and learning in classrooms for the deaf over the years. In addition, TODs knowledge of curricula related to the needs of deaf children is also important. The historical and sociocultural factors, as well as the few curricula that have evidence for success with deaf children have been summarized in *Table 2: Knowledge of Curriculum*.

Table 2

Knowledge of Curriculum

Component	Summary
Historical and Sociocultural Influences	• Methods wars • Deaf culture • Medical model • Sociocultural model
Literacy Curricula for Deaf Children	• *Reading Milestones* • *Reading Bridge* • *Edmark Reading Program* • *Fairview Reading Program* • *Reading Recovery*

Finally, *knowledge of teaching* focuses on Michael Graves' (2006) instructional theory related to high-quality vocabulary instructional practices for all children. Research on deaf children and literacy development has shown that deaf and hearing children share more similarities in literacy processes than differences (i.e. Schirmer & McGough, 2005), resulting in a theory on deaf development called the qualitative-similarity hypothesis (Paul & Lee, 2010). This hypothesis supports the idea that deaf children's learning processes are, in fact similar to those of hearing children, as they go through similar stages and produce similar errors in learning as their counterparts with typical hearing (Paul & Lee, 2010, p. 456). Therefore, researchers have shown increasing support for the use of instructional practices associated with positive learning in hearing children to be leveraged in regard to deaf children (Easterbrooks, 2010). In addition to this framework, it is important to consider the pedagogical considerations specific to deaf children including instructional correlates and native ASL user strategies to foster early language and literacy skills. *Table 3: Knowledge of Teaching* summarizes the findings and instructional components for all of these key pedagogical factors.

Table 3

Knowledge of Teaching

Framework	Component	Summary
Four-Part Vocabulary Program	*Providing Varied Language Experiences*	• Discussion prompts • Read-alouds • Casually drawing attention to words and their meanings • Providing embedded meanings during conversation • Casually labeling basic vocabulary in conversation • Access to varied literature • Focus on variety of language experiences
	Teaching Individual Words	• Direct instruction of word meanings • Providing definitional information about words • Providing contextual information about words • Use of wait time during discussion • Multiple exposures of words • Providing new labels for previously learned concepts (synonyms) • Providing clarifications on words meanings
	Teaching Word Learning Strategies	• Use of context to figure out new word meanings • Use of reference materials to figure out new word meanings • Use of word parts to figure out new word meanings • Use of patterns in words to figure out new meanings
	Teaching Word Consciousness	• Playing games with words • Developing metacognition about words • Promoting a positive affective stance toward words • Pointing out differences between spoken/sign language and print • Discussing words with multiple meanings
Instructional Practice for Deaf Children	*Five Instructional Correlates (Easterbrooks, 2010)*	• Teachers should be skilled in using the language of their students • Explicit instruction of both language and literacy is necessary • Instruction should promote higher-order language use and critical thinking • Scaffolding children's learning is important for instruction • Instruction should involve the use of visual supports

Native ASL User Input Strategies	*Early Language Strategies*	• Waiting until the children are looking at you before using language • Drawing attention to the hands and formation of signs • Attention getting strategies • Altered location of the sign to accommodate line of sight • Use of sequential language processes • Increased cycliclity • Increased duration • Clearly articulated signing • Lack of advanced grammatical structures • Using pointing as a replacement for a sign • Use of "lone signs" • Attaching the fingerspelled word to a sign • Attaching a fingerspelled word to a printed word • Use of fingerspelling to point out various word parts • Use of facial expressions and body language to demonstrate characters in a book • Use of repetitive movements in storytelling
	Shared Reading Strategies	• Deaf readers translate stories using American Sign Language • Deaf readers keep both languages visible (ASL and English) • Deaf readers are not constrained by the text • Deaf readers re-read stories on a storytelling to story reading continuum • Deaf readers follow the child's lead • Deaf readers make what is implied explicit • Deaf readers adjust sign placement to fit the story • Deaf readers adjust signing style to fit the story. • Deaf readers connect concepts in the story to the real world • Deaf readers use attention maintenance strategies • Deaf readers use eye gaze to elicit participation • Deaf readers engage in role-play to extend concepts • Deaf readers use ASL variations to sign repetitive English phrases • Deaf readers provide a positive and reinforcing environment • Deaf readers expect the child to become literate

In conclusion, these three areas of teacher knowledge and the associated literature will serve as the foundation for this study. By connecting the comprehensive vocabulary instructional framework to the knowledge surrounding deaf children's vocabulary development, instructional correlates for deaf children, and curriculum for deaf children, in the context of the sociocultural and historical landscape for this field, it is possible

begin developing notions of the “common practices and shared understandings” guiding instruction in classrooms for deaf children today (Bransford et al., 2005, p. 9).

CHAPTER THREE

METHODS

The goal of this research was to examine the nature of vocabulary instruction in early childhood classrooms for signing deaf children. Given that very little is known about the vocabulary instruction that is occurring in these classrooms, the aim of these research methods was to uncover the complex interrelationships between teacher knowledge and practice were necessary for a rich understanding of this phenomenon. Qualitative research was particularly suited to this endeavor as, "it consists of a set of interpretive, material practices to make the world visible" (Denzin & Lincoln, 2000, p. 3). By employing qualitative research methods, it was believed that novel understandings about substantive topics that are relatively unexplored could be uncovered (Stern, 1980). As such, these methods were of value for "refining theory and suggesting complexities for further investigation" (Stake, 2000, p. 448), investigations that will be necessary to expanding the knowledge base on this important topic.

Research Design

Qualitative research has been defined as "a situated activity that locates the observer in the world" (Denzin & Lincoln, 2000, p.3). For this study, I entered the world of the early childhood classroom for deaf students. The focal point of this world, or the phenomenon to be studied, is the teacher – her knowledge, practice, interactions, and self-perceptions. Given that this phenomenon was so salient within the research questions guiding this study, case study research design was a natural fit for this work. As Stake (2000) wrote, "Case study is not a methodological choice but a choice of what is to be

studied" (p. 435). Therefore this research combined qualitative methods that can capture the complexities of this world with case study research design that captures the phenomenon as intended.

Case study requires the identification of the "bounded system" that will be examined as a case, or the specific set of conditions necessary to define it as a case (Stake, 1995, p. 2). As this case was aimed the age of early childhood, which spans multiple years (3-8), multiple teachers were needed for this work. In this study, four TODs were recruited from two classrooms. As the co-teaching relationship needed to be accounted for within this study, the case was bound at the classroom level. Consequently, the research design that is most appropriate for this study is a qualitative collective case study with the classroom as the unit of analysis for inquiry. Given that qualitative research "involves an interpretive naturalistic approach to the world" (Denzin & Lincoln, 2000, p. 3), exploring the naturally occurring context of early childhood within a school was considered an important opportunity to learn about these collective cases.

Collective case study was also more ideal for providing insight into the larger questions of early childhood vocabulary instruction for deaf learners than a single case, as studying multiple cases in depth and comparing the similarities and differences among them was considered helpful in providing representation to this larger issue (Stake, 1995). Stake (2000) called this approach to case study, instrumental case study, as the goal of this type of case study is to "provide insight into an issue or redraw a generalization" (p. 436). Collective case study is instrumental case study involving multiple cases, which

strengthens its ability for representation. Even so, the nature of case study is inherently concerned with "particularization," not generalization, as the uniqueness of the specific case is as important as the insight provided about a larger number of cases (Stake, 1995, p.8). Therefore, researchers who undertake case study must acknowledge that by operating with the simultaneous intermingling interests of the particular and the general, significant limitations in the ability of the case to represent the larger issue at hand remain (Stake, 2000).

Research Site and Participants

The site of this research was a school for the deaf in the United States that focuses on the development of American Sign Language and English through a bilingual-bicultural approach. Moores (2010) describes five major components of bilingual-bicultural education:

1. ASL (or another signed language) is the first language of the deaf students;
2. Speech should not be the primary mode of communication for learning spoken English (or another spoken language);
3. Sign language based on a spoken language should not be used;
4. ASL (or another signed language) must remain separate from spoken English (or another spoken language);
5. ASL (or another signed language) should be used the vehicle for promoting competence in reading and writing (p. 21).

Only approximately eleven percent of deaf children are enrolled in programs that use this approach (Moores, 2010). This language philosophy could be seen in all aspects

of the selected school, as all public places had a posted sign indicating that the school adopted a bilingual-bicultural approach and required that when in public places, people sign to the best of their ability. In addition to adopting this approach, this school devoted itself to high academic standards for deaf children, communication access for all children, and a focus on the development of the whole child. As this was a small school, all early childhood teachers were invited to participate in this research, as "selection by sampling of attributes should not be the highest priority. Balance and variety are important; opportunity to learn is of primary importance" (Stake, 1995, p.6). Two teachers in a preschool classroom (age 3-4) and two teachers in a kindergarten classroom (age 5-6) volunteered for participation in this study.

Preschool Class

The preschool class consisted of eleven children, two teachers, one nurse, and three full time and one part time instructional assistants resulting in a 1:2 teacher-student ratio. This class was considered an inclusion class, as it had some children who have comorbid disabilities with their hearing loss. The hearing loss in this classroom ranged from mild/moderate to profound. One student had a very rare form of high frequency hearing loss. There was one student with a cochlear implant and five students with hearing aides (one student uses them inconsistently). Children in this class received the following services, as indicated in their IEP: speech and language; occupational therapy; and physical therapy. All children received push in instruction by an ASL specialist twice a week to work on developing ASL skills.

Preschool Teacher 1: Alice. Alice worked in early intervention, preschool, kindergarten and second grade for a total of 19 years. She began as an instructional assistant and then moved into a teaching position. She is hearing and she first became interested in working with deaf children through an assignment she had as an instructional assistant. She has her master's degree in deaf education and she holds a credential in special education. While she reported having extensive coursework and professional development on hearing and deaf children's language development, including a master's thesis on the topic, she reported having less education specific to vocabulary as a separate process. On the knowledge questionnaire, for both hearing and deaf populations, she reported that she held a medium level of knowledge and experience on the topic of vocabulary development and instruction (rating of 3 on a 1 to 5 scale; see Appendix A).

Preschool Teacher 2: Lauren. Lauren taught preschool for five years solely in the context of deaf education. She became interested in working with deaf people as a child because she had a deaf family member, but she, herself, is hearing. She comes from a family of teachers and did not think she wanted to become one. Instead she thought she wanted to be an interpreter. After working as an interpreter during her program, she found that interpreting educational settings were the most exciting. As a result, she decided to pursue a master's in deaf education. Similar to Alice, Lauren also reported on the questionnaire that she has average levels of knowledge of vocabulary development and instruction for both hearing and deaf populations (rating of 3 on a 1 to 5 scale; see Appendix A).

Kindergarten Classroom

The kindergarten classroom had ten students, two teachers, and three full time instructional assistants, resulting in a 1:2 teacher-student ratio. The hearing loss in this classroom ranged from moderate to profound. Half of the students in this classroom are designated "auditory access" as they benefit from auditory information. Nine out of the ten students had amplification (three students with cochlear implants, six with hearing aides), but only six of the students used amplification regularly (two with cochlear implants and four with hearing aides). Children in this class received the following services, as indicated in their IEP: speech and language; occupational therapy; and physical therapy. All children received push in instruction by an ASL specialist twice a week to work on developing ASL skills.

Kindergarten Teacher 1: Kelsey. Kelsey has been teaching kindergarten for two years at the deaf school. She is deaf and went to a school for the deaf growing up and Gallaudet University as an undergraduate. She attended a master's program for deaf education. She reported that she wanted to become a teacher to give back to the deaf community, as children need strong language and role models in schools. On the questionnaire, Kelsey reported having slightly above average knowledge of vocabulary development and instruction for deaf and hearing children (rating of 4 on a scale of 1 to 5; see Appendix A).

Kindergarten Teacher 2: Maria. Maria has been an educator for six and a half years, two and a half in preschool and four years in kindergarten. She is hearing and first became interested in working with deaf people, as she regularly

encountered a deaf person as part of a job she had. She began taking sign language classes and was interested in becoming a TOD, but was discouraged by a deaf adult due to her hearing status. Instead this person persuaded her to pursue interpreting. During her program, she worked any job at the deaf school that she could find to remain connected to the community and further her sign skills. Eventually, she decided that interpreting was not enjoyable for her, so she enrolled in a master's program for deaf education. As with Kelsey, Maria also rated herself an average of 4 on the questionnaire (range of 1 to 5; see Appendix A).

Data Collection

Data was collected during the 2012-2013 school year. Teachers were recruited through the school's research application process. As the school receives multiple requests for research participation, they have established a review process to streamline requests to their staff. After completing the application, I was required to meet with the research review panel to provide clarifications regarding process and expectations for teachers. Then the director of the early childhood program brought the research to the teachers to gage interest. Four teachers were interested and I was asked to come back to the school to speak directly to them about the project. During this meeting, we discussed the project, timeline, and informed consent. Questionnaires were handed out and the interviews were scheduled for the following week.

Teachers were asked to bring their completed demographic and content knowledge questionnaire to their interview. The demographic questionnaire was based on one developed by Diane August and her colleagues at the Center for Applied Linguistics

to assess the level of knowledge a teacher possesses about vocabulary instruction and vocabulary instruction for dual language learners (Haynes, Duguay, August, & Kenyon, n.d.); however, this assessment was modified to reflect the needs of the deaf student population (please see *Appendix A* for the modified questionnaire). At the time of the interview, two of the teachers requested more time to complete the questionnaire. For these two teachers, the questionnaires were returned at the time of the stimulated recall session.

The semi-structured interviews were used to probe into teachers' backgrounds, experiences, and their perspectives on teaching ASL vocabulary to young children (please see *Appendix B* for interview protocol). As such, these interviews were video recorded to capture any language examples the teachers may provide. Two of the hearing teachers chose to use spoken English during their interview, as we were in a closed conference room for these interviews. The third hearing teacher was interviewed in her classroom. As the classroom was a public space, she chose to sign her interview with me.

After the interviews, approximately six hours of language and literacy instruction was videotaped per classroom. The selection of which six hours to observe was made in collaboration with school personnel. I discussed with the teachers and director of the early childhood program, what they believed would be the most representative observations of their classrooms. The teachers felt that to truly capture the nature of instruction in their classroom, it was important to view their morning block of instruction from start to finish. Days of the week were selected to avoid specials and times when too many students would be pulled out for support services. The observations occurred over a

month after the interviews due to lags in student consent forms being completed. These observations were video recorded to preserve the integrity of the visual nature of this language during coding.

Before observations occurred, the researcher spent a morning in each classroom to understand the flow of instruction and determine the best place for video cameras to be placed. During this time, the research also took field notes on the environment of the classrooms. The pre-observation was a good addition to the methods, as it allowed for the researcher to be thoughtful in determining the best way to capture the instruction without disrupting the classroom. This procedure was especially important in being able to capture ASL, as the visual nature of the language makes it inaccessible when teachers turn their back to the camera or someone walks in front of her.

Since the teachers were co-teaching, video cameras were set up to observe both teachers at the same time. This was challenging, as the teachers moved freely around the classrooms at times and the researcher had to navigate both cameras around the classroom to follow their instruction simultaneously. As a result, the researcher often had to go back and forth between streams of video during the coding process to capture a full activity.

Finally, stimulated recall sessions were conducted using data collected during the classroom observations. Stimulated recall is characterized by the use of videotape to prompt a participant's cognitive recall of the mental processes occurring during the event presented. Although the details of this process has been varied in the research, the general procedure has consisted of the participant watching the videoed event and recalling the

thoughts occurring to her/him through a 'think aloud' procedure that is often supplemented by probes to support the process of recall. These probes are typically "a series of structured, but relatively open-ended, questions posed to the subject as soon as possible after, or during, the viewing of the videotape" (Lyle, 2003, p. 863). Stimulated recall has been used widely in research on teaching, linguistics, counseling, and nursing (Lyle, 2003). In education, it has been employed to help understand the complex behavior and decision-making process of teachers (Lyle, 2003).

For the purposes of this study, selected segments of observations were presented to teachers in a follow-up session where teachers were instructed to recall their thoughts and decision-making processes during that activity. The observations and stimulated recall session occurred the same day for each classroom (one day for preschool and one day for kindergarten). After engaging in the interviews and listening to teachers describe their instruction in terms of a string of "activities" that occur throughout the day, it was determined that segments would be the most meaningful if viewed at the level of discrete activities. This use of simultaneous video streams also had implications for the stimulated recall sessions, as it complicated the editing process making the selection of video clips a more involved process than anticipated. As a result, the researcher selected the segments of instruction for the teachers. The observations and stimulated recall sessions occurred on the same day for each classroom, as the recall session should occur as closely in time with the actual event (Lyle, 2003). The researcher observed in the morning, edited during lunch, and engaged teachers in stimulated recall in the afternoon. Teachers were given an opportunity at the end of the stimulated recall session to indicate if there was a segment

of instruction that they would have preferred to discuss, but they reported the segments selected were appropriate representations of their teaching.

It is important to note that due to varying lengths of activities, there also were multiple clips that were addressed within the hour-long session. The preschool teachers viewed two segments that engaged both teachers during the co-teaching process. They also observed one segment each during individual work with their students during play or center-based activities. Although they each had 'single teacher' segments, they still interacted with each other during these portions of the recall session. During the observations, the kindergarten teachers engaged in fewer joint activities than the preschool teachers. As a result, these teachers preferred to engage in the stimulated recall session separately. Please see *Appendix C* for the stimulated recall protocol.

Stimulated recall has been noted to have cognitive potential for insight into cognitive thoughts and learning; however, significant limitations to the process have also been noted. These limitations include verbalization altering the true nature of the cognitive process (Ericsson & Simon, 1993), issues related to decay of recall after time has passed (Gass & Mackey, 2000), or the desire to be seen in the best possible light (McConnell, 1985). Researchers have acknowledged that these types of influences may be minimized with carefully structured designs around the recall process (Gass & Mackey, 2000). Important factors in reducing these influences include: reducing anxiety for participants; limiting the perception of judgmental probing; reducing the intrusion into the event; stimulating rather than providing prompts that encourage novel

perspective or insight; engage in the process quickly after the event occurred; allowing an unstructured response; and employing an indirect route to the focus of the research (Lyle, 2003, p. 866). For this study, probes were carefully selected to elicit recall rather than reflection, the sessions occurred the same day as the actual event, and the responses had have minimal interruptions when possible to allow for the participant to guide the session rather than the researcher. For a full account of data collection procedures, please see *Table 4* below.

Table 4

Data Collection

Data Source	Participants	Frequency per Participant	Totals
Demographic and Content Knowledge Questionnaire	4 early childhood teachers at a School for deaf students	One questionnaire	4 questionnaires
Semi-structured Interview	4 early childhood teachers at a School for deaf students	One interview	4 interviews
Classroom Observations	2 classrooms at a School for deaf students	6 hours of observation	12 hours of observation
Stimulated Recall Sessions	4 early childhood teachers at a School for deaf students	1 one-hour stimulated recall session	4 one-hour stimulated recall sessions

Analysis and Coding

Once data was collected, it was analyzed through the approach of qualitative content analysis. Content analysis describes a family of analytic approaches and is

flexible to various theoretical and substantive inquiries including those that are quantitative or qualitative in nature (Hsieh & Shannon, 2005). Although content analysis can come from various epistemological and/or theoretical underpinnings, qualitative methodology has been chosen to guide this research, as it is able to capture the complexity of the topic and uncover new knowledge in the area.

Qualitative content analysis can be defined as a "research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns" (Hsieh & Shannon, 2005, p. 1278). Although content analysis can be differentiated for the various purposes of research, researchers have acknowledged that it is important to define the specific types of content analysis beyond just qualitative versus quantitative distinction as a means to strengthen it as a analytic method (Tesch 1990). In an effort to better establish parameters for qualitative content analysis, Hsieh & Shannon (2005) propose three variations: conventional content analysis, directed content analysis, and summative content analysis. Conventional content analysis generates themes and patterns within data through an inductive process. Directed content analysis establishes predetermined themes, subsequently examining remaining data through a more conventional iterative approach as a means to uncover new categories or subcategories within the data. Finally,

summative content analysis is less about the meaning of the categories and more about the usage of language as they are associated or interact with various meanings.

The type of content analysis chosen for this work was conventional content analysis. Therefore, the researcher attempted to allow the data to generate the themes with an understanding of the research literature rather than based on the research literature. Analysis began with exploration of the teacher interviews. The exploring phase began with the researcher watching all teacher interviews in succession for a general impression of the content. The next step included watching each interview again and making notes on the content being represented to begin to generate some initial codes. These codes were rough ideas at this point and included: child-directed instruction, Reggio Emilia, vocabulary is part of a larger language learning process, and the role of direct instruction.

As previously noted, during the interviews, two teachers used spoken English and two teachers used ASL. At this point I decided that for the interviews in spoken English, I would transcribe them before coding for efficiency. This decision was partly made due to my strength as a visual processor over auditory processor. Transcription consisted of watching the video, pausing, typing what was said, and repeating for the next statement. For the signed interviews, the coding occurred directly on the video, so the transcription phase was skipped for these interviews.

As time went on, I was drawn to the connection of these codes to the Four-Part Vocabulary Program, but tried to employ these codes in absence of that framework during the first round of coding. Although the initial exploration of the data occurred after the interviews and before the observations, the coding happened after the observations and stimulated recall.

The same exploration activities occurred with the observations and stimulated recall sessions. I watched the observations and recall sessions twice, took field notes, and added the following codes to the pool: unique features of ASL, Deaf culture, reflection, and documentation. For the stimulated recall sessions, three teachers chose to use spoken English and one teacher used ASL. The hearing teachers chose to use spoken English, as they could engage in simultaneous communication more easily than in ASL. Once again, if in English, the sessions were transcribed before coding. ASL was coded directly on the video. All observations were coded directly on the video at the level of the instructional activity.

The final data source explored was the teacher knowledge questionnaire. This questionnaire had already grouped questions based on various bodies of knowledge related to vocabulary instruction and the researcher wanted to view it in light of the interviews, observations, and recall sessions, to see if any new connections existed between questions and data.

Through this initial examination, however, it became apparent that the identified themes in this study directly connected to the various components of the Four-Part Vocabulary Program (Graves, 2006). Not only did this program allow for categorization of teacher interview and recall, it actually accounted for the observations better than the codes generated through iterative analysis. This was the case for all codes except for the codes related to child directed instruction. While child directed instruction did intersect with Graves' (2006) Promoting Word Consciousness, the abundance of information related to the complexities of child directed instruction appeared to need a special theme devoted to it.

As a result, coding consisted of two stages. The first stage was coding according to the initial codes generated from the data. The second was coding of the data using the Graves (2006) framework in addition to the codes already generated. The new codes did not replace the codes that were generated through iterative analysis; instead they supplemented those codes. The first set of codes assisted me as I write the discussion section of Chapter 4, as they helped to show some important aspects of teacher decision-making within each component of the Four-Part Vocabulary Program.

It is important to note that the researcher has had extensive experience in recent years with the Four-Part Vocabulary Program through graduate studies, more so than probably any of the other bodies of knowledge reviewed during chapter two. This

experience may have made these components more salient during the data analysis and coding process, impacting the saliency of instructional components that fit this framework.

After coding, the researcher watched all videos one more time addressing each classroom at a time. Field notes were taken at the classroom level to look for consistencies across the teachers and data sources. Then after each classroom was examined as separate cases, the notes were examined for consistencies across both classrooms to examine and report on the cases as a collective case study.

At this point the researcher decided to present the data in terms of five major themes: Grounding Principle of Child Directed Instruction; Providing Rich and Varied Language Experiences; Teaching Individual Words; Teaching Word Learning Strategies; and Promoting Word Consciousness. Within each of these broad themes, the iterative categories did appear and contribute to the discussion of the factors within the Graves (2006) framework; however, they were not discussed as distinct themes (except for codes related to child directed instruction).

At this point, I identified quotes and activities that would exemplify each of the categories. The quotes were reexamined for grammar, punctuation, and readability. I decided at this point to remove “um” and “you know” from the quotes unless these phrases contributed to the meaning of the sentence (i.e. “um” to indicate a pause, or “you

know?" phased as a question). ASL quotes were also selected at this time. Only quotes that were selected for inclusion in this dissertation were translated into English.

At this point, I read the analysis multiple times for intersections to the conceptual framework presented in chapter two of this dissertation. Through each read the researcher noted when there were connections to each of the knowledge bases in the Bransford et al. (2005) framework: learners, curricula, and pedagogy. After making connections to the literature in this way, the researcher returned to the analysis to ensure that the discussion mirrored the finding presented in the results of the study.

Criteria of Soundness

There has been debate in the field about how to best ensure that qualitative research is conducted with rigor and quality (Janesick, 2000). In quantitative research, terms like validity and generalizability have been the measure of success in this arena. For qualitative researchers, these terms have been found to have either little meaning or confusing meanings when applied to this new context (Wolcott, 1995). Therefore, qualitative researchers have attempted to provide their own measures of soundness to ensure that "an inquirer persuade[s] his or her audiences that the research findings of an inquiry are worth paying attention to" (Lincoln & Guba, 1985, p. 290). Although there remain competing theories about what to call the criteria that need to be present in qualitative research (Freeman, deMarrais, Preissle, Roulston, & St. Pierre, 2007), certain aspects of qualitative research have been repeatedly acknowledged by the field: description, transparency, and triangulation.

An important feature of qualitative work over the years is the presence of "thick description" of the phenomenon at hand (Geertz, 1973). Janesick (2000) reports, "The description of persons, places, and events has been the cornerstone of qualitative research. I believe it will remain the cornerstone, because this is the qualitative researcher's reason for being" (p. 393). The goal of qualitative research is to fully uncover a phenomenon and in order to adequately explore all the relevant factors involved a full portrait of those factors needs to be presented and examined. Therefore, a full account of the research with particular attention to understanding fully the participants, places, and events have been provided in chapter three and four of this study as a means to provide information for others to understand the participants and their context adequately.

Another key feature of measuring quality in research is the transparency of the research methods including data collection and analytic process. The Standards for Reporting on Empirical Social Science Research in AERA Publications (2006) emphasizes this point, "it is important that researchers fully characterize the [analytic] process they used so that others can trace their logic of inquiry" (p. 11). By allowing others access to the researchers decision-making process, they may be able to ascertain if the warrants and claims made by the researcher indeed have merit (Freeman, deMarrais, Preissle, Roulston, & St. Pierre, 2007. For this research, the procedures underlying the data collection and analysis have been provided with emphasis on the decision points made by this researcher in order to establish credibility of the methods in answering the research questions.

Quality in qualitative research has also frequently been measured by the presence of triangulation in the research design and analysis. Denzin (1978) categorized four types of triangulation in qualitative research: data triangulation, investigator triangulation, theory triangulation, and methodological triangulation. Other qualitative researchers have reiterated these four categories over the years (i.e. Patton, 1990) indicating their lasting presence and influence on the nature of qualitative research as a field.

Data triangulation is the most recognized of the four, as it requires multiple data sources examining the same phenomenon. This may be the easiest of all triangulation, as "qualitative research is inherently multimethod in focus" (Denzin & Lincoln, 2000, p. 5). In any case, data triangulation "reflects an attempt to secure an in depth understanding of the phenomenon in question" (Denzin & Lincoln, 2000, p. 5) and is considered "a strategy that adds rigor breadth, complexity, richness and depth to any inquiry" (Flick 1998, p. 231). For this study, multiple methods for gathering data were used including interview, observation, questionnaire, and stimulated recall. By examining these varied data pieces, more evidence is available to sustain the claims of the researcher.

Theory triangulation focuses on using multiple perspectives or theories in the interpretation of the data. While alternative frameworks of vocabulary instruction will not be explicitly introduced to this work, there will be active attention paid to "searches for disconfirming evidence and counter-interpretations, and representations of differing perspectives among participants and researchers, including attention to their location in the broader social structure" (AERA, 2006, p.11). In particular, this study is hinged on the qualitative similarity hypothesis (Paul, & Lee, 2010), or that the fundamental

vocabulary instruction for deaf learners will be inherently the same as hearing children with modifications specific to the use of a visual language. The research actively searched for conflicting explanations of the patterns throughout the analytic process, but kept returning to the Four-Part Vocabulary Program as the best fit for the data collected.

The last type of triangulation is methodological triangulation and it deals with the use of multiple research methodologies to examine the same phenomenon. For this reason, mixed method research has been receiving increased notoriety in the field. For most studies, however, this methodological triangulation transcends a singular study, instead focusing on the larger body of evidence used to justify a claim or assertion in the field. As this study is firmly rooted only in qualitative methods, this is one area of triangulation that cannot be addressed in this study alone.

In conclusion, a complete description was provided to allow for detailed understandings and transparency regarding the context and procedure of this research. This was not an easy feat; however, as the low incidence nature of hearing loss and few schools for the deaf in this country required careful consideration of confidentiality of participants and the school in providing details. This research also included multiple data sources addressing different aspects of teacher knowledge and practice allowing for data triangulation.

Researcher Positionality

Language and culture are integrally connected processes; for that reason, research on language and literacy can have important cultural implications. These cultural implications stretch beyond the connection of a particular language to its heritage culture,

they also include how other cultures may come to view and interpret the nature of research findings. Therefore, it is important to be cognizant of the researcher's background and beliefs, as they can color the lens through which she interprets the world and research (Lather, 1986). The factors that color my world include my own personal background and my beliefs regarding the Deaf community and culture. Personally, I am a half Puerto Rican woman raised by a white parent and an African American parent from a working class background. Growing up a member of minority race and culture has helped me to be sensitive to the how being a member of a non-dominant race/culture such as the Deaf community/culture can impact a student's experiences in schooling and learning. My studies into how these experiences can shape a person's learning profile has also taught me the important role of social contexts in language development as they are related to the development of academic skills.

Of even more importance to this particular work is my beliefs regarding deaf education and culture that have developed as the result of a prolonged relationship with the Deaf community. I am what would be referred to as a 'hearing' person, or a person with normal hearing thresholds across frequencies. After spending two years immersed within Deaf culture while completing my graduate work at Gallaudet University and five years working with children who are deaf and their teachers, I would like to believe that my view on the education of the deaf is one that is both culturally sensitive and cognizant of the diversity represented within this population, however, "given the diversity among deaf individuals, their communication preferences, ad their social orientations, it is not a simple matter to fully understand what it means to be deaf" (Marshark, 2007, pp.6).

Therefore, I recognize my limitations as a hearing person in truly understanding the Deaf culture, knowledge of ASL, and participation in the Deaf community, as I do not know the experience of hearing loss on a personal level, "Simply put, as a hearing person I can never truly understand what it means to be Deaf or to grow up (deaf or hearing) in the Deaf community" (Marshark, 2007, pp.7).

CHAPTER FOUR

RESULTS AND DISCUSSION

The purpose of this investigation was to examine vocabulary instruction in early childhood classrooms for deaf children by addressing the following question: What is the nature of vocabulary instruction in early childhood classrooms for deaf children who have American Sign Language (ASL) as a primary language? Four teachers from two classrooms participated in this study: Kelsey and Maria from kindergarten, and Alice and Lauren from preschool. They engaged in interviews, questionnaires, observations, and stimulated recall sessions.

Results from these data are presented in this chapter and suggest that the Four-Part Vocabulary Program was applicable to describe the nature and strategies used in ASL vocabulary instruction for deaf children. This is consistent with the qualitative-similarity hypothesis discussed in chapter two, a hypothesis that proposes both hearing and deaf children use the same underlying cognitive processes in vocabulary development (Paul & Lee, 2010). As the same underlying processes are used in vocabulary acquisition, it stands to reason that similar instructional strategies could also be employed for instruction of new words and signs.

Even though this framework accounted for these teachers' vocabulary instruction, within each tier of the Four-Part Vocabulary Program teachers needed to weigh information related to learners, curricula, and teaching as part of their instructional decision-making process. As such, teachers' instructional philosophy, early childhood developmental framework, and knowledge of instructional strategies specific to meet the

needs of a visual language like ASL influenced how the Graves (2006) framework was enacted and expressed in their classrooms.

Consequently, this chapter will describe the guiding instructional principles that directly impacted the nature of vocabulary instruction in the study classrooms before examining the specific strategies and activities used by teachers to teach new ASL signs through five major themes: Grounding Principle of Child Directed Instruction; Providing Rich and Varied Language Experiences; Teaching Individual Words; Teaching Word Learning Strategies; and Promoting Word Consciousness. Finally, the discussion will address the features of learners, curricula, and teaching that influenced the way the teachers employed the Graves (2006) framework in their classroom.

Guiding Principle of Instruction

The foundation of classroom instruction for both the preschool and kindergarten classrooms was the importance of child directed instruction. Teachers conveyed their thoughts and beliefs regarding this approach through their interviews and stimulated recall sessions; however, examples of child directed instruction could also be seen in the observations. In this perspective, children are viewed as competent, their interests are considered valuable, and instruction must be able to evolve with the children as they grow. This aspect of instruction was considered largely influenced by teacher beliefs, curricular philosophy, and the diversity within students' language abilities in their classrooms. As Lauren, one of the preschool teachers, stated during her interview child directed instruction is, "all about the students and following their lead. And really looking at them, as, this [the child] is reason that we're here." All teachers noted that one of the

primary reasons for needing a child directed approach was the diversity in language skills among the children they serve. As children come to the classroom with varying levels of ability, the teachers reported a need to meet the children where they are, rather than apply a one-size fits all approach. Kelsey articulated this best during her interview,

> You really need to be child centered. Engage their interests. Discuss with them what they are thinking. Follow their thoughts. Really jump into deep conversation with them … because the children are so diverse. Some arrive at school with language, some arrive with no language - very little language. They only have gesture at home or really basic signs. Not much support for ASL. So really follow kids – student centered – to get as much language out of them as possible.

Although child directed instruction was considered by the teachers as important to their teaching, the preschool teachers indicated that they did not start off their teaching careers with a child directed focus. Lauren recalled her early years,

> I did not start out teaching that way [child directed], at all. My first year I taught a very, a very intensive need class that did not have opportunities throughout their day to socialize with other students - to have scaffolding and peer modeling. It was 'I will teach you how to do your colors. I'll teach you how to do this. I'll teach you how to do this.'

However, these teachers felt a lack of success teaching in a teacher directed manner. They discussed their trying, and failing, at keeping children engaged in activities long enough to learn. As a result, they felt disconnected to their teaching in the classroom, "it just didn't match who I was, and it didn't seem to be matching who they [the children]

were." Alice shared her journey toward the conclusion that she needed something different from the traditional teacher-led approaches,

> And one of the experienced kindergarten teachers had given me the curriculum, 'here's a science curriculum, here's a math curriculum, here's this,' so I started reading the math curriculum and it was called everyday math. And I was reading it and I'm like I can do all of this stuff at lunchtime, or snack time, or lining up, or playing outside. I don't need to do it in a half an hour math time. And then I started with a science curriculum, which is supposedly *big book* and *kid friendly* and *multisensory* and all of that. My kids hated it! I spent 10 minutes on it and they're flipping tables and flipping chairs. And so I'm like ok, how do I make this more kid friendly? So I brought in a box of stuffed animals and we pretended to become stuffed animals. How do they act and how do they – to do what this science thing was. Still very teacher led very teacher directed. Kids were very frustrated and interfering with the learning that was going on …. One day, and it was early on, and I just said, 'This curriculum just isn't working for me.'

After time, these teachers were introduced to the idea of child directed instruction through an initiative at the school to adopt the curricular philosophy of Reggio Emilia (Forman & Fyfe, 1998). The Reggio Emilia approach is a curricular philosophy that originated in the town of Reggio Emilia in Italy after Word War II (Edwards, Gandini, & Forman, 1998). This approach uses guiding principles designed to, "create a culture of learning and teaching" (Martalock, 2012, p. 7). Reggio Emilia is centered around children and their capabilities. In this view children are seen as, "*rich, strong, and powerful*"

(Martalock, 2012, p. 7). In Reggio Emilia classrooms, children are co-constructers of knowledge developing shared understandings with teachers and other students through their day (Martalock, 2012).

Through the support of the school, these teachers were encouraged by the school to attend workshops and professional development sessions introducing them to Reggio Emilia. As they were exposed to the underlying tenets of the program, they reported liking it more and more. Lauren indicated the emphasis on valuing the children as learners was a particularly motivating aspect of the program,

> So I started studying this Reggio approach, because it had been presented to me when I was hired that that was something that this program was trying to take a shift to. And once I started learning about it and learning valuing the child as the learner, as opposed to me as the teacher, it really impacted me. And then I slowly made the change to where I am today.

Alice confirmed this sentiment, as she believes the Reggio approach echoed her previously established beliefs about children and their competencies,

> One of the components of the philosophy is that children are competent. And I truly believe that kids are competent. I believe that they're capable learners and they're competent in thinking for themselves and developing skills for themselves – if we set up an environment that is rich for them to access. So I already believe that, I already know that and that just feels really good to be able to implement it in a classroom without having to force predesigned curriculums on them.

The idea of valuing children, especially their communication and language use, was also a theme among these teachers. The teachers took pride in their students' excitement about communicating with others. Lauren exemplified this sentiment,

> Communication is valued and students' communication is valued and it is strongly encouraged that students try to communicate with each other to work out problems, share ideas. They're really adorable right now. They're valuing their own communication and their own language and their new thing is 'I have an idea!' 'I've noticed that …' or really just communication is valued. And really whatever a student has to say is valued as just important if it is a right or a wrong answer.

The idea that children should be valued as competent learners was the initial connection that the teachers had to the program, however, after some experience with the program, they noticed a level of learning occurring that reinforced their decision to use this approach in their classroom,

> And the kids started one day, they found a book about wolves and they started playing and becoming wolves and I just let it go and we went with that. And then their ASL time, their ASL teacher came in and read a story and they acted out wolves and that kind of led to another thing, which led to another thing. And they just began to play but learn through play …. They were able to develop thinking skills. They were able to move from one play scenario to another play scenario, without it being directed by me. And then a lot of scaffolding was able to occur, and from every member of the class, not just 'here are the higher-level kids' and

> ‘here are the lower-level kids’. And so then I just fell in love. Then I’m like, ‘I need to get better at it. I need to get more learning about it.’

Lauren reported that as a result of the Reggio Emilia approach her instruction also shifted focus substantially,

> You’re always gonna get a lot more from them if they are interested in what they are doing, than if you set your own agenda in mind. As a new teacher my first year, I’ve kind of come full circle, but I think have a ways to go. But it’s not about you, it’s about them.

These teachers found that teaching in a child directed manner wasn’t a simple process, however, as it requires constant reflection and flexibility in their instruction,

> It’s constant thinking. It’s constant analyzing myself, analyzing my students - discussing with Alice … I think really just taking a look and seeing if we’re ready to bump it up … You just kind of have to keep looking at the kids then looking at yourself and looking at the kids, and keep analyzing it because you always have to make changes as a teacher.

This reflection often occurred within the context of the co-teaching relationship. Collaboration is a method frequently employed by special educators, however, there is little evidence on the effect of co-teaching on student achievement (Friend, Cook, Harley-Chamberlain, & Shamberger, 2010). In this study, all of the teachers indicating the potential for increased student learning through co-teaching as they believed their instruction was enriched by having another teacher to talk to about the decisions they are

faced during lesson planning or instruction. Lauren reported the profound effect having a co-teacher has had on her teaching and the students' learning,

> I think that I probably wouldn't be where I am as a teacher without having someone that I can kind of go back and forth with. And I don't think they would be where they are without the two of us being able to go back and forth with each other.

Kelsey also discussed the co-teaching relationship in her interview, "We sit down and discuss things a lot. We work well together … Communication [with each other] is a necessity [for effective teaching]." Therefore, by engaging in collaboration with one another, these teachers viewed themselves as being able to provide rich instruction, grow as teachers, and adapt to the changing needs of their children.

The teachers reported that these changes occurred in a variety of ways. The most prevalent type of changes discussed, however, was related to the evolving nature of instruction in a child directed classroom. A prime example of these types of changes is a recent shift that the preschool classroom made from a morning message, where students were exposed to language, to a morning meeting, where students participate in discussions. This transformation was the result of the changing needs and abilities of the students in the classroom,

> One of the things I've found is that the kids, when we first got his group, a lot of their language was very minimal. Most of the kids in the class didn't have a lot of language at three. So you know a lot of that narration was just really to expose, and expose, and expose. And give them as much language opportunities as we

> could. But what's happened over the past year and a half? Now they've picked up a whole bunch of language and they are thinking on their own and they are able to articulate it. So we've really turned that into more of a morning meeting. Where we discuss a topic, whatever the topic is, it depends. Today it was about planting. All our plants, half our plants were dead and then the rest were really dry. So we talked about like, 'look at these plants, they are really dry, what are we going to do about it? These ones all died, you guys planted seeds but nothing happened. Why didn't anything happen? Look this is what's left of the plant.' So it depends.

Teachers also reported adapting the environment to meet the changing needs of the children in the classroom regularly. Sometimes these changes are made based on child interest, other times they are made to address growth in the children's abilities. In the Reggio Emilia approach, the environment is considered the "child's third teacher" so changes in the environment were considered an essential part of the teaching and learning experience. Lauren notes that their decisions to change something in the class are made by

> really looking at each kid. You know Alice and I set up the classroom one way and we think that this is how its gonna go, and two months later we go 'Oop! They're at a whole other level and we're way back here where we were.' So really being willing to make changes as a teacher and adapt. I mean our environment changes. We notice that the kids are fascinated with the writing area, well then the writing area becomes a lot bigger. We notice that the kids are needing more sensory things. Ok then that area - so we physically change the classroom to meet

> their needs. … Just really trying to meet each individual need, but also the classes need, and being willing to. Maybe it wasn't exactly what you had planned, but this is what they had planned and this is what they need at this time.

Another way the teachers adapted their instruction is to serve the immediate interest of the child, while working to maintain instructional value within the lesson. For example, during the observations, the preschool teachers had been using the projector to show a slideshow related to a project on which the students were working. At the conclusion of the slideshow, the children left the area to participate in center-based activities. However, as the children moved through the centers, one student noticed that the screen saver was being projected on the screen. The screen saver consisted of simple lines in different colors floating across the screen. One student indicated that it made her want to dance and started to imitate the screen saver in her own movements. Not before long, the entire class had gravitated to the screen, dancing and laughing. The teachers followed the children in their shift of activity, modeling description of the lines and body movements in ASL. In the stimulated recall session, Lauren noted that the simple screen saver "inspired" the children to dance, therefore the teachers made an effort to take advantage of their interest as a way to provide more advanced ASL concepts. Furthermore, by capitalizing on this interest, the teachers were able to see children of various ability levels participate and learn from each other. One student even walked around the room recruiting the other children to come dance with him,

> This little guy whose head dancing [break dancing on his head] right here, doesn't socialize all day, but this non-language based activity was something that he felt

> confortable and could participate in … he's interacting with the kids, he's having fun with them … he wants everyone to be involved.

Similar activities could be seen in the kindergarten classroom, as Kelsey was engaging with children during their morning playtime and a student abruptly interjected a comment about the fire alarm. Following his lead, Kelsey took a step back and began to model for the students in ASL the fire alarm process, from the fire starting, to the smoke detector, to the sprinklers, and, finally, the alarm. Using primarily classifiers, this discussion was rich with ASL description and vocabulary. She even took the opportunity to ensure that the children knew what to do if the fire alarm went off. When asked what do you do if there is a fire, one of the students signed, "die." Kelsey went on explain the concept of 'escape' and engaged the student in signing how to 'run away' from the fire in different ways, as there are multiple ways to sign this one concept. She indicated later during stimulated recall that by following the child's interests she was able to "pull more language" out of the student though this exchange.

Teachers even reported following the child's lead even when it was not an ideal match with how they planned an activity to unfold. For example, Alice was working with a student to create a small-scale model of a frog pond as a model for the set of one of the upcoming classroom plays. Lauren had bought clay for this specific purpose, but the child had made up her mind that moon sand was the correct material to use. Alice dialogued with Lauren during stimulated recall about the experience:

> Alice: You know how much I didn't want to use moon sand! I tried to convince her of any other material

Lauren: I went to the store and bought clay last night.

Alice: But she was so cute. She was like, 'You know the moon sand. You know it's in the bathroom closet. You know it would be perfect!'

Although Alice believed that the mood sand would be too soft and messy for the project, she allowed the child to attempt the project with the material she preferred. After a short time, however, the child decided on her own that it was not going to work out. Later, Alice indicated that this outcome was her favorite part of the lesson, as the child was able to learn from the experience and independently come to a conclusion,

My favorite part was when she shifted from the moon sand, and she said, 'You know what, I'm trying to make this frog, but it keeps falling apart.' And I said, 'Well do you want to try clay?' now I had tried to suggest clay before and she didn't want anything to do with it. She had this great idea about moon sand and I think that is what's gonna work best. And then when she actually got to the material and she decided that that wasn't the best material for her project and she came over and started using clay to create it. That was my favorite part.

While these example of following the children's interests is typical of both classrooms, the preschool teachers find that child directed instruction isn't as simple as just following the interests of the child, as it requires active decision making regarding how much or how little guidance is needed for a project. When recalling and reflecting on a drama activity, where the children created a story to act out as a play, the preschool teachers engaged in an exchange that exemplified this dilemma.

Alice: I think that's what's challenging in this class, I think, letting them lead but then where do we take over as the teacher to guide them to the next thing? And that could become a challenge, because this play thing is theirs and they own it, but if we just left it - they need guidance

Lauren : It might not come to an actual play too

Alice: Right, which is something that they really want

Lauren: And it might not include all of them

Alice: So its just a challenge to try to figure out how much to be involved and how little and when to -

Lauren: Stay true to what they want

Maria, one of the kindergarten teachers, also found this tension in regard to integrating the kindergarten standards and a child directed approach. She felt the two approaches are not quite compatible with one another, which brings a tension into her teaching, "There has to be a balance. Follow the child's interests and follow the standards, there has to be a balance…how do we directly teach [the standards] and support natural acquisition of language and learning? You know."

These types of comments on their teaching were common for these classroom teachers. The preschool classroom even had reflections posted at centers and on the walls of the classroom, outlining how a particular activity evolved over time or impacted a child in the class. Even during the stimulated recall session, Lauren and Alice made a decision to change an aspect of a play they have been working on to better suit one of the student's needs. The teachers noted that they think one of the students might be feeling a

little left out given that her role in the play was much different than the other students. Alice noted, “My point was to make it special for her because she misses a lot. But sometimes being more special instead of being included … (shrugs)” By the end of the stimulated recall session, these teachers had decided to change the nature of her role in the next draft of the play to be more integrated with the other students.

The preschool teachers consider this exchange a very typical one. They reported having daily discussions about the nature of the classroom instruction, often on the way to work. Beyond just relying on memory or creativity, these teachers also use regular documentation of student progress to inform these reflections and decisions. Documentation is a key aspect of the Reggio Emilia approach for progress monitoring and evaluating individual student’s instructional needs. In this classroom, documentation primarily consists of notes, pictures, and videos. By examining the documentation of students on a regular basis, Lauren reports that they can know when it is time to “bump it up” to the next level of difficulty, to meet the growing needs of the student in a child directed approach.

Lauren noted that not everyone in the field of education supports the idea of documentation, as it lacks the rigor of more formal assessment. In fact, she reported that standard assessment is actually limiting to the children, “I think a lot of critical thinking skills are getting lost in tests and standards.” Furthermore, she contends that it is possible to maintain rigor in tracking student progress by connecting learning goals to documentation sources,

> Some people think that the Reggio approach is kind of ridiculous, but I've gone to the frameworks of preschool and I've written a lot of documentation where I pull from the frameworks and show how the kids are meeting the frameworks from what we are doing [through documentation].

Lauren reported that documentation also plays an important role in measuring her own effectiveness as a teacher. By being able to review documentation on her students' progress, she can see the impact her teaching has had. In her own words, "it's my accountability for what they are doing." Through documentation, the teachers felt that they reflect on their teaching, adapt it to the children, and truly stay child centered in their scaffolding of children's language within the classroom.

The Four-Part Vocabulary Program

Beyond the overarching context of the classroom, to study the nature of vocabulary instruction, it was important to examine the specific instructional activities and strategies that teachers used to teach new ASL signs. After viewing data collected within this investigation, it was apparent the Four-Part Vocabulary Program (Graves, 2006) was a good starting point for examining instruction, as it is a framework for instructional strategies.

Of all the components of Graves' (2006) vocabulary program, the two most prevalent in the data were Providing Rich and Varied Language Experiences and Promoting Word Consciousness. These were the two tiers of the program to which teachers devoted the most time during their interviews, observations, and stimulated recall sessions. These were also the two tiers of vocabulary instruction that the teachers

had the most correct responses on the teacher knowledge questionnaire. All teachers answered all questions related to word consciousness correct on the questionnaire. The teachers' next highest score on the questionnaire was for the section addressing varied experiences. Teachers demonstrated some confusion about the effectiveness of dialogic reading (they perceived it as more effective than it has been shown in the literature) and the presence of various genres of literature in the classroom (newspapers and magazines), but otherwise, these teachers demonstrated knowledge about the role of rich experiences in vocabulary instruction.

Responses for the remaining tiers of vocabulary instruction (Teaching Individual Words and Teaching Word-Learning Strategies) were less consistent than the first two tiers. For the questions dealing with word-learning strategies, teachers answered the questions regarding the importance of opportunities to practice word-learning strategies correctly; however, they had incorrect responses for the questions regarding the roles of dictionaries and other reference materials in the classroom. As these strategies are more typical to older children, lack of experience with these strategies may be related to this pattern.

Questions regarding teaching individual words constituted nearly half of this section of the questionnaire. On these questions, all of the teachers had a substantial number of questions that were incorrect. Beyond incorrect responses, teachers also left questions blank or took advantage of the "I don't know" option of the questionnaire. These teachers had a higher number correct response rates for the questions that dealt with developing background knowledge, the use of context, and the types of definitional

information that should be provided to students. The patterns in their incorrect responses indicated that teachers were unsure of the role of frequency (of the times a word appears in materials students read) and salience (words that are essential to understanding the book) in word selection and vocabulary instruction.

As noted previously, the findings of this teacher knowledge questionnaire were consistent with the findings of the interviews, observations and stimulated recall sessions. The remainder of this chapter is devoted to describing through the teachers' own words and through rich description of the classroom instruction, the nature of vocabulary instruction including teacher knowledge and practice.

Providing Rich and Varied Language Experiences

This tier of the Four-Part Vocabulary Program was one of the most prevalent in the data. Providing Rich and Varied Language experiences is defined as immersing children, "in a rich array of language experiences so that they learn words through listening, speaking, reading, and writing" (Graves, 2006, p. 5). For young children, "listening and speaking are particularly important for vocabulary growth" (Graves, 2006, p. 5). In the context of this study, speaking is equivalent to using ASL. For these teachers, providing the rich experiences with language that promote development is one of their highest priorities affecting their daily instructional decisions.

The teachers in this investigations considered vocabulary learning as part of the "natural acquisition" process and immersion in language for all children. Maria summarized their approach to vocabulary as, "Most of the time, it's about language, period. Really a natural environment of language acquisition." Lauren agreed with this

statement, “So I don’t think we formally teach vocabulary. It’s just whatever they are kind of interested [in], they’re gonna acquire. And we kind of just use whatever they’re interested in to our advantage.” Therefore, the idea of a rich language environment that provided exposure to advanced language concepts from diverse language users was one of the most important aspects of vocabulary instruction for these teachers.

The first step to creating a language rich environment was to ensure that all language and communication was considered important. Consistent with her previously mentioned thoughts on the Reggio Emilia program, Lauren indicated that her idea of a perfect language environment would be one where, “Language is valued, both ASL and English. That students have visible accessibility to the language.” This idea could be seen within all the classrooms and even throughout the school. Within the classroom, ASL served as the language of instruction and “language of socialization.” Children were encouraged to communicate as much as possible to adults and other children alike.

In regards to the school, as noted earlier, all staff are expected to sign to the best of ability in public places providing access for all staff and students on campus. Alice described the school language policy as one where ASL is a primary focus,

> I think there is a real constant focus on using ASL all the time - and I’ve been in places where that doesn’t exist. So that general respect for deaf people where language is always visible or should be always visible, and when its not people are called on it. And its brought up and discussed that this is a community where signing needs to be happening and ASL needs to be happening in the environment

- so that all people have access to what's going on. So I think that's really good. That doesn't happen in other places.

English was also valued in both the classrooms and school as English print was present on walls, in presentations, and in books prominently displayed in the classrooms. For students in auditory access classrooms, spoken English also played a role in their instructional day, during reading instruction and print awareness. These students are regularly exposed to both ASL and English in a smaller classroom setting, as Alice described "So they sandwich language. They can sign it. They can speak it. They can sign it. They try to match the kids' needs. And it's a smaller group usually." Furthermore, teachers often called attention to ASL-English connections within their instruction for all students, ASL and auditory access, establishing understandings about what makes each language distinct entities and promoting respect for each language in its own right.

Beyond valuing language and ensuring that all people have access to the language that meets their needs, specific activities and strategies were used to provide a rich language environment for the children. The first strategy teacher used was to provide multiple opportunities throughout the day for play. The first part of the day in both classrooms is designated as time for children to engage in play-based learning and play. The preschool classroom also engages the children in what they call Morning Investigations, a strategy derived from Reggio Emilia, where children are provided with play materials to investigating topics that are interesting to them.

During stimulated recall, Kelsey indicated that she was glad a play-based segment was included in the session as, "That's a good example because sometime people think

that natural play isn't good for learning. But they learn more through [play] everyday for sure." All teachers reported that during playtime, children have the opportunity to have one-on-one interactions with teachers and other staff, as well as engage in opportunities for scaffolding language through peer role models and leaders.

Technology played a critical role during playtime for these classrooms, for both instruction and documentation. During the observations, teachers were seen taking pictures and videos of the children during their play. All teachers indicated that one reason technology benefits deaf children is because they are engaging in a sequential processing of language, rather than simultaneous (Jamieson, 1994a, 1994b). Alice made a comparison of hearing and deaf students and their language processing during play,

> I think as hearing kids can stay engaged and not have to stop and look at a person to process language. They can still feel connected visually with what they're doing. But a deaf kid, as soon as you want to provide language, they have to stop what they are doing, look at you and process the language, and return to what they are dong. It interrupts and segments their thinking, so that, instead of having it foster the learning activity, it seems to really impair it.

Lauren noted that this interruption, not only impairs the student's thought process, but also often resulted in the student refusing to take part in the language interaction,

> Because if you tap them and they look at you, they get mad because they're actually, in fact, doing something that is very important to them. And then when you try to feed them with this new language, they're like, "excuse me." And then

> they tend to walk away from you because you have interrupted what they're doing.

Therefore, one of the major ways technology was used in the classroom was to videotape play as it occurred naturally in the classroom and engage in a discussion about that play through a joint viewing of the video with the child, once that the play is completed. Through this strategy, the teachers are able to allow for both cognitive development and language interaction, without compromising the integrity of either activity.

The second distinct strategy for providing a rich language environment was modeling. There were three kinds of modeling teachers used: modeling high quality ASL, and modeling through repeating students' language at the next level of difficulty, and students' modeling language for each other. All teachers talked about modeling, however, Maria summed it up best, "In my classroom as much as possible, we sign with them. Constantly signing …. Model, model, model, model." In addition to teacher modeling, one way they ensured that children were being exposed to the highest quality language possible was though capitalizing on native ASL role models. Through either being a classroom guest or using a video, Deaf role models were reported to be a regular part of ASL story time or morning meetings, even if the classroom had Deaf staff already. In addition to being strong language models, having guests in the classroom also served to expose children to different ways of signing the same concept or new sign vocabulary. Alice discussed the essential role of providing various language models in the classroom,

> Having ASL stories told by different people, so that they're exposed to different - people use different vocabulary. I think hearing kids … like my own children, a

> lot of their higher-level vocabulary didn't come from being with me everyday cause I use the same words all the time. … But to read a book and get a different kind of language or have someone else interact with them and get a different kind of language really expands their vocabulary development.

The teachers reported the impact of different signers in the classroom could be seen frequently in the children's own language acquisition. Lauren recalled a time when a Deaf role model came in to read a story to the students,

> I sign dark (B handshape, palms inward, moving from the forehead to chin), but she signed dark, like this (5 handshape, palms outward, with extended fingers that bent), so don't you know the next day they're like "this is dark (new sign)

Adults not only modeled high quality ASL, but they also used modeling as a scaffolding tool in the classroom. As mentioned previously, often teachers videotaped play segments of the children during the morning that they used for language instruction at a later time. These videos served to not only provide rich play and language interactions, but also to show the children their own thoughts through demonstration of the same concept or story in a slightly more advanced version of ASL.

> We model language a lot and we use a lot of technology to do that, because you can't directly talk to a deaf child when they're playing with the blocks … So we have done a lot … of videotaping and then [teacher] signing it [for them] later. And then the students starting to sign their own work again.

The kindergarten classroom also used videos as a way to model and expand students' language. Kelsey reported that through watching the videos with the teacher and

discussing other ways of saying the same thing, they can "compare their language, see their mistakes, and self-edit."

This type of modeling was seen during the classroom observations. In the kindergarten classroom, the students watched a play they recently acted out, "Henny Penny," and then were asked to summarize the plot of the story. During their summaries, the teacher modeled language choices for them that would improve their retell. During the morning meeting in the preschool classroom, a student's play was shown on the screen followed by a video of the student narrating that play. Then after the student narration, a video of the teacher signing the same story was presented followed by a brief reflection on the story itself. The goal of this activity was to expose and scaffold the child's language to the next level, "looking at whatever they're working on, we kind of bring it into a little bit more formal ASL." Lauren went on to describe her desire to engage in this activity more frequently in the classroom, "I think that if I had all the time in the world it would be really nice to show modeled language a lot more to the students, each of their own play." This desire was fueled by the teachers' belief this activity provides a valuable experience that not only exposes children to higher levels of language, but also provides them the opportunity to think critically about their own language choices.

For the preschool classroom, these videos evolved into an activity that is now called Story Workshop. After repeated narration of their play activities, the children progressed to a place where they could start to tell stories through their play. The teachers

then captured these stories and shared them with the class. Alice shared how this evolution occurred in their classroom,

> I started at the very beginning feeling like I was interrupting what their play was. I just felt bad about that. I felt like they needed to get to richer play without me interrupting and stopping, and interrupting and stopping. And so we started dong the videotapes and providing this morning message thing. Which was really good, but it sort of evolved … they started being able to narrate some of their videos and some of their own play clips, and that sort of evolved into 'Can you tell me a story about what you're doing?' … So maybe, I don't know, maybe a few months ago, we decided a few months ago to make it a little more specific and a little more defined. So we call it story workshop and it has four components. One is story Creations, and that's during morning investigations. The kids play, they create their story. They can create anytime they want. They can be on video anytime they want. We catch them playing, we ask them what their story is, they tell each other what their story is. They're really cute. They can come out into the hallway and they bring their picture and they can sign their story. They can do it right there during their play, whatever they want.

At the beginning, Alice reported that the stories were at the most basic level of language and storytelling,

> The stories started, and they're getting a little bit better, but they started very basic. Very disconnected. Like, 'Here's a bear. And the deer comes up and chews on the leaves and there's a squirrel and (pause) the end.' Because those were the

> materials that they had. And that was the level of difficulty they had with their story making. It was more, you know, 'Here's this, here's this, here's this.' And we're done.

She then went on to describe the role that staff members have in developing higher-level language and introduction of new signs through this activity,

> Two days a week, we do Story Workshop. So for those two days, one person has an opportunity to take their story that they created and work with one of the Deaf staff to look at their videotape and edit their videotape and clarify what their story was. So that there's a little bit more clarity in their signs.

As the children were developing even more, some stories were selected to become drama activities, where the author of the story directed the other children in the class to act out the story on video. Then in the final step of the process, children worked with the teacher to write their story in English. These videos and written stories are then shared with parents and staff at the school.

These teachers reported that Story Workshop enhanced the language environment of the class by allowing for students to become positive language models through their storytelling. Through story workshop, teachers indicated that children did not have to rely just on adults for language learning, which increased the overall quality of language interactions in the classroom. For example, recently the students created a play together that they wanted to share with the school. After creating the story, they needed to decide on a title. The title that won was, "The Search for Ice Cream. Pah!" Pah is an English word created by the Deaf community to explain the sign for success, as it is the sound

that is typically made in connection with the sign. Alice and Lauren described the process of reaching that title during stimulated recall:

> Alice: We came up with a title that got voted down because the kids came up with a title that they liked better.
>
> Lauren: To me, I did it in English and then signed it. And they did it in ASL. It was great! I was happy about it.

As a result, the students were able to be language leaders in the classroom providing rich experiences for each other, as opposed to being language followers who relied on the teachers to provide language experiences for them. In fact, one student debated with the teacher,

> where the location of the sign (success) should be located. And Crista (a student) was telling me, "no in fact it was up here (at cheekbones) and it's not here (at corners of mouth)." And when I confirmed with a deaf staff that in fact it was here (at corners of mouth), she accepted.

Lauren and Alice both were excited about this particular exchange with Crista, as she felt she could be a language role model even for the teachers in the classroom. For these teachers, this exchange was an example of how having children as role models could not only produce rich discussion and experiences with language, but also allowed them to "just feel competent about who they are as person and a learner."

Teaching Individual Words (Signs)

As mentioned previously, the teachers reported during their interviews that they do not engage in much direct teaching of words and their meanings. Instead, they

indicated that direct teaching of words occurred primarily during a push-in lesson conducted twice a week by an ASL specialist. Many schools for the deaf have ASL specialists that specialize, not just in using ASL, but also in teaching it. During this time, the specialist reinforces classroom ASL learning and instructs students on the specific features of ASL, "We try to do playful things, but it's direct teaching of ASL and the structure of ASL."

The results of the ASL specialist's instruction became evident through the stimulated recall session. During the read through of the preschool class' play, students began interjecting new signs into the narrative. The story included a number of characters, primarily animals, going on a search for ice cream. As animals walk differently, their gait can be signed differently. While the teacher was signing the story, students began to produce new ways of signing how the animals walked through the use of classifiers. Classifiers are a type of vocabulary that do not have an equivalent in English (Schick, 2003). They serve the purpose that adverbial and prepositional phrases do within English (Beal-Alvarez, 2012). It turned out that, "In ASL (class), [the students] acted out the different animals and signed it "so they came up with different signs for how a horse would move, how a cat would move, how a pig …" They then brought these new signs back to the story and began telling the teacher their own preferred ways of signing each animal's walk.

These teachers felt there was little direct instruction of words in their own teaching, as there was not a dedicated time, or structured teacher-led activity, for teaching these signs. It was apparent, however, that teachers did engage in teaching individual

words as defined by Graves (2006, 2009). Graves views teaching individual words as a complex process whereby meanings are taught through deep and meaningful interactions, "vocabulary instruction is most effective, and most likely to influence students' comprehension, when it is rich, deep, and extended" (Graves 2006, p. 6). Furthermore, one of his principles for teaching individual words is that, "more lengthy and robust instruction that involves active learning, inferences, prior knowledge, and frequent encounters, is likely to be more powerful than less time-consuming and less robust instruction" (Graves, 2006, p. 21). As a result, the natural interactions, robust discussion, and thoughtful presentation of new vocabulary to meet instructional goals resulted in teachers using strategies that were more representative of the active learning that Graves suggests. Specifically, these teachers provided multiple exposures to words, targeted specific vocabulary words, and actively taught sign meanings in context, including providing clarifications for sign usage.

One of the most prevalent strategies seen in interviews, observations, and stimulated recall sessions was to casually draw attention to words and their meanings. All teachers indicated that this strategy is one of their primary ways of teaching new words, as Alice noted,

> If I come up with a new word – just trying to use it naturally – but trying to support it with context, so that the kids pick it up. And repetition … So really repetition of certain language that we want them to catch, that we want them to develop. Some rich higher-level language that we can put out in context and try to repeat that.

By naturally drawing attention to the words and exposing children to it multiple times, teachers believed that the children would slowly incorporate it into their own language repertoire. They reported that they saw these signs in their student's language and were sometimes even surprised at the signs the children picked up from them. Lauren did not realize that she used certain signs so much in the classroom until she saw the children beginning to use certain signs frequently, "Sometimes you don't even realize you're using a sign. Like true-biz (signs true business). And they're like (signs true business), so they got the sign, but they're naturally using it appropriately." The other teachers reported similar experiences with children, reinforcing their notion that an exposure to signs multiple times in their environment is a key aspect of vocabulary development for their children in the classroom.

These teachers invested considerable thought in the words they chose to teach, as well. Sometimes the teachers preselected words and sometimes they selected words in the moment of instruction, it depended on the word and the topic of discussion. One of the most prevalent types of words directly taught to children during observations or discussed during stimulated recall was classifiers. All teachers discussed the importance of classifiers in the context of teaching ASL. These signs were often discussed among teachers to ensure that the classroom was rich with demonstrations of appropriate classifier use. These teachers also relied on the ASL specialist for helping with classifier instruction, as it is one of the hardest categories of sign vocabulary to both acquire and teach. Lauren and Alice solicited the assistance of the ASL specialist to help them with this endeavor,

> We were talking about the importance of classifiers and the important role that they have in ASL as a language … And we were realizing that classifiers are not our thing and we needed help from a deaf staff … So we really needed a deaf ASL specialist to come in.

Through support of ASL specialists and other deaf teachers, classroom activities were created or adopted with the specific goal of promoting classifier use. One type of activity that met this need was ASL poetry. During the observation of Kelsey, in the kindergarten classroom, she engaged in a deaf poem designed to work on number classifiers, where caterpillars were introduced in a sequence: on Monday, one caterpillar crawled by (one handshape); on Tuesday, two caterpillars looked around (two handshape); and so on through to Friday (five handshape). Given the amount of thought and pre-planning to provide instruction on these types of words, it appeared that classifiers were one of the most valued categories of signs for direct instruction.

Another commonly noted reason for choosing a word was that the teacher noticed the students had not acquired it. For example, Alice noticed that neither the teacher, nor the students used,

> the word *last*. Recently I've been trying to use it because they don't have it. You know, we tend to sign first all the time. Or sometimes we'll even do first, second, third. Or count the kids. But we don't use last often, so every time I can I try to be thoughtful about it recently.

In addition to the language specific reasons for choosing a word, there were also times when teachers reported social reasons for word selection. For example, the preschool

classroom has been dealing with some social issues on the playground. As a result Lauren and Alice have been making an effort to refine understandings of certain signs. During stimulated recall, they explained their rationale,

> So the 'two of us', 'three of us', 'four of us', thing. They tend to have a very negative thinking pattern about 'two of us', because they get exclusive outside on the playground and they shun some of their friends. So they think this sign is just not allowed. And it's just not allowed when you're being mean to someone and you're excluding someone. So I was thoughtful about that when I incorporated it into this. That really you can sign two of us and you can sign three of us because it makes sense in ASL, but not when you're saying *just* the two of us.

Teachers also reported selecting words in the moment of instruction based on the opportunities presented or needs of the child. During classroom observation, Maria taught one of her auditory access students the word 'squeak (fingerspelled and spoken)' as he noticed an environmental sound (his pencil pressed hard against the paper) and asked her what it was. During stimulated recall, she discussed her thoughts about that choice, "That [the instruction] just kind of happens as it naturally pops up. So I didn't have squeak on my list of word to teach him, it was just a word that popped up. And just go with it." By being flexible and adjusting language based on the immediate context, Maria was able to teach a new word to a student based on his interests.

The teachers reported that sign selection is a complex issue for them. It is not just about what concepts need to be signed, but the best way that the concept should be signed. Lauren and Alice both reported soliciting help from a native ASL user to assist in

determining the best way to sign. Even then, there could sometimes be insecurity about the sign choice. Lauren described her latest dilemma,

> So I've been dealing with, how do we sign castle? A lot of the staff signs castle (2 handshape imitating the top of a pointed tower), but today I decided to do this (closed fists straight arms horizontal, right moves to vertical, left moves to vertical, then 2 handshape imitating the top of the pointed tower), and I talked with my husband and he's deaf and he signs castle (5 handshape vertical in front of body moving upward and slightly bending fingers) … but he's not sure why he did this (demonstrates movement again) or if this is in fact the correct classifier. So he said, 'do not use that on the video (points at sign),' so I did this (repeats earlier sign she decided to use) and I noticed later Karina really wanted to tell a story and that 'new this (repeats sign again)' becoming a castle became a part of it.

Although Lauren was excited for this quick acquisition of a new word, she also felt it was "a little bit scary too because … it puts pressure. We want to be sure we are using signs that are good for them to pick up cause now they are starting to really [learn quickly]." As a result, even exposure to a word once could have high stakes for the children in their classrooms if the sign is not the correct one.

In addition to introducing signs for the purposes of advancing ASL, signs were also selected to introduce students to English words that do not exist in ASL. Kelsey discussed the importance of exposing English words through fingerspelling, "fingerspelling words so children will recognize them. They will start to make the sign to

print connection." One example of a fingerspelled word taking a prominent place during instruction was during a read through of the preschool classrooms new play. Each child had picked their character for the play and one student had wanted to be a baby horse. So Alice decided to name the character 'Colt' (fingerspelled C-O-L-T) instead of 'baby horse'. During reflection she noted that this was a choice she would not have always made,

> So in the past that's something that I would have brushed out. But over time I've gotten better at it, I would have just called it a 'baby horse' or I would have just called it a 'baby cat', but then they are not exposed to what those real words are. And it's that ASL English bridge that really helps them later when they read the word.

Therefore, the teachers were thinking beyond just the ASL needs of the children and attended to the English language needs of the children, as well.

Not only did teachers connect ASL and English through fingerspelling, ASL signs were also taught in connection with English print, as well. This theme was seen primarily in the kindergarten classroom, as they were focused more on reading English than the preschool class. During reading instruction, there were times when children did not know the English word presented or the ASL sign for that word. In these cases, the teacher simultaneously taught the ASL sign and English word together.

Beyond word selection, teachers engaged in instructional strategies designed to teach sign meanings, and provide clarifications of sign usage toward those meanings. These interactions often occurred through natural interactions with children during play.

For example, Alice clarified sign usage of ‘prince’ versus ‘princess’ while working with a student on an activity. The student signed ‘prince’ when she intended ‘princess’. In ASL, both signs use the same handshape, so Alice took the opportunity to clarify the different movements for each of the signs for the student. Another example was when Kelsey provided a new concept and sign to a student by describing the difference between a traditional smoke detector (white and round), versus a sprinkler that both detects smoke and sprays water. These kinds of language interactions were common among both classrooms and all four teachers. Although they occurred through natural discussions and interactions and not a separate distinct lesson targeting vocabulary development, they were instances of robust teaching individual words and their meanings.

Teaching Word-Learning (Sign-Learning) Strategies

Of all the parts of Graves (2006) vocabulary program, teaching word learning strategies was the least represented in the data. Graves indicates that word-learning strategies can take the form of using context to figure out new words, using word parts to unlock meanings, and using reference materials when appropriate. While a lot of the research supporting these strategies is engaging older children with English print (Baumann et al., 2003), there were some unique sign learning strategies used by the teachers in this study.

In terms of teaching word-learning strategies, teachers relied primarily on teaching or drawing attention to sign parts (phonology/cherology and morphology). Knowledge of handshapes and how they correspond to different signs, as well as the movement of handshapes are important pieces of ASL phonology/cherology (Newport &

Meier, 1985). Lauren reported a targeted focus on handshapes in their classroom, “We work on handshapes all the time. Whenever we catch those moments.” For example, they have recently engaged in an activity that promoted identification of signs that use the same handshape. During a later presentation of an ASL story Lauren “was stuck. And it was this handshape (one) and I didn’t know what to do. And they raised their hand and they were like, ‘it could be lightening, it could be mouse, it could be bumping into [each other],’ all of which use the ‘one’ handshape in their sign. So they took a vote on the sign that best fit the story content. Lauren was excited to see the children applying their new knowledge in a different context.

In addition to handshapes, two other important aspects of both ASL phonology/cherology and morphology are the location and movement of the signs. As with teaching classifiers, ASL poetry was used to teach location of sign placement and movement of the sign. The previously mentioned caterpillar poem not only worked on number classifiers, but it also had a repetitive component that required a sign placed in the forehead region followed by the chin region in each new verse. During instruction, Kelsey had a color-coded diagram that separated location by head, chin, and chest. She used this diagram to assist with the acquisition of the locations during the poem, by pointing to the correct location of the sign as the student tried to recite the poem. This activity assisted the students in learning about the rules governing locations and placements of signs. These types of activities were also present in the preschool classroom, as Lauren discussed a recent activity promoting the different movements (gentle, medium, and hard) involved in differentiating shades of blue,

> So we were painting a set for a play … we were discussing blue. Blue (light blue) and blue. So in English dark blue. And they were like blue (typical blue) and that's that blue (light blue) and then the dark night sky was blue (dark blue) … it's kind of fun when they're realizing that

As the sign for all three shades of blue uses the same handshape, but only differentiates the intensity of the movement, the teachers were able to teach the children about the rules of how sign movement corresponds with different concepts, a sign-learning strategy that they could later apply to different colors or other signs.

As these children were very young, they did not use traditional reference materials like dictionaries. However, teachers did encourage children to refer back to centers or information posted on the wall to help them recall or remember a sign or to connect a sign to the written word. This strategy was used more frequently in the kindergarten classroom, as the sign to word connections were a primary part of their reading and writing instruction.

Promoting Word (Sign) Consciousness

Promoting word consciousness was also an area of vocabulary (and language in general) learning that was prevalent throughout this investigation. Graves (2006) defines word consciousness as, "an awareness of and interest in words and their meanings" (p. 7). Furthermore, "this involves an appreciation of the power of words, an understanding of they certain words are used instead of others, and a sense of the words that could be used in place of those selected by a writer or speaker" (p. 7). Connected with the context of child directed instruction, children's interests and motivation were often considered when

teaching and presenting language to the children. By presenting new signs and language in an engaging way, teachers reported that children were motivated and interested in both signs and ASL.

As a first step toward accomplishing this task, these teachers reported that the staff and children needed to enjoy what they are doing. When asked about what kind of advice on teaching vocabulary she would offer a new teacher, Maria replied,

> Really I feel teachers need to have fun. If teachers don't have fun the kids won't have fun. And it's really important that they [the children] have fun. They're not going to learn if they don't have fun. They'll be resistant to learning. So it's really important for them to have fun.

Lauren provided a contrast of vocabulary instruction that engaged children in interesting activities, versus rote exposure to new signs,

> I remember that one of my first IEPs written was like, 'the student will develop 10 ASL signs related to a theme.' And I'd be like, 'this is a leaf, this is a tree, because it's the fall, this is a apple, this is a that.' And if they didn't care about it, they weren't going to retain the information. So instead providing them with materials and the language associated with those materials. I mean right now, oh my gosh, they are all fascinated with the chicks that are hatching. And we use that to our advantage. So right now that's their interest that's where I am gonna get the most vocabulary at them.

Alice discussed how focusing on a child's interest and generating excitement about language and vocabulary can help with maintaining attention to language in the

classroom, a necessary part of language acquisition for deaf children (i.e. Ackerman et al., 1990; Swisher, 2000). She reports that one of the biggest challenges in the class is

> Attention. Getting them to attend to language and finding a way that you can provide language. And meaningful language. And have them be able to pay attention, not only to what you're saying, but what their peers are saying … you can't build on language until they actually pay attention to it.

However, she dislikes telling the children to attend to her, "One of the things that makes me crazy, and I do it, is 'Oop! Look at me, look at me, look at me', and I hate it, because now that makes an activity that could be fun, not fun." So instead of requesting the children's attention, these classrooms use strategies designed to naturally acquire children's attention in order to generate excitement about new signs and language. These strategies include: the focus on students and the things they value, the use of technology, the focus on multiple meaning words, and the focus on ASL as a distinct and interesting language.

The first way that teachers promoted interest and motivation to learn new words was through engaging children in language activities that held high interest for them. While many of these activities were child led, the teachers also engaged in activities designed with the children's interests in mind. For example, a key aspect of the preschool class' Story Workshop is that the stories come from the students themselves discussing topics already of interest to them, "Their stories held value. So I think that became an interest for them all." As young children are typically most interested in things that are

directly connected to them, Lauren and Alice made the activity even more personal by promoting the idea of authorship,

> So one student signed a story and we videotaped it and we told the kids that the student was the featured author for the week … Come on, you get your name put up on the board and you're a featured author. There was such value in that. So now they're all like, 'I have a story! I have a story!'

In addition, these stories provide an opportunity for the students to edit their work, promoting interest in different ways of saying the same thing, "So watching it [the video] and saying that's not what I meant … or 'does that look clear to you? Oh no, I need to add a sign!' has also generated an increased interest in sign choices and vocabulary for the students, as the students are really intent on other people understanding exactly what they mean.

Technology also plays a prominent role in maintaining attention and interest among the students. An interesting note about the role of technology in the classroom, is that the use of technology was not an end game in and of itself. Instead, technology was a tool used toward specific language goals. Lauren explains her feelings toward technology use in the classroom,

> I do not like technology to teach, like here's a game, play it. … but [instead] using technology to our advantage because it's [ASL] a visual language. You can't, I mean you can try to gloss everything in ASL, but that's a little bit ridiculous. So using that [technology] to our advantage. Also using the people out there. There's beautiful videos signed in ASL from different deaf people and pulling that into

> the classroom … So really trying to use technology to our advantage, but not the point of using technology as a teaching - that kind of teaching tool.

Specifically, the use of video was a popular strategy among the teachers. Video was especially important in maintaining child interest during the ASL story time. Alice described this phenomenon during her interview,

> So we have a story videotaped and they watch the story. Sometimes we have it not videotaped, but we found that they really watch it better and they get more language from it on screen than they do in real signing.

When asked why the children appear to be motivated by the video over a real person, she replied,

> I don't know [why they get more out of the story on the screen]. I wonder (pause) they seem very distracted when it is a live person, but when it's a video they are very focused. They are very tuned in … as soon as you put it on a movie, they're like, 'oh, I like that.' … I'm not sure of the answer, but I know that it's effective … I think it's been really effective with our class for language development.

She went on to discuss the scaffolding around the use of video in the class, "But we also try to step it up or step away or infuse it with real person stuff as they develop better skills to do that. I would rather not have it all on the screen" Even so, the video feeds into her larger instructional goals, so she continues to use it as necessary, "my goal for putting things on the screen is I want them to get the best, I want them to get the most out of that time, because they miss a lot."

Promoting attention to language and adult role models was not an easy process for the teachers, however, as attending to the teacher or other adults was considered potentially in contrast to the child directed instruction they promote in class. Alice discussed her thought process around maintaining attention and following the children's own thought processes,

> I hate look at me, look at me, look at me, look at me, but at the same time there is valuable information that you want them to pay attention to, so really try to pick and choose what's valuable. When do you want them to pay attention to you? And when can you kind of give them the freedom to share their own thoughts and ideas? And watch each others thoughts and ideas because they're valuable too.

Another strategy used to promote interest in signs, words, and their meanings was the focus on multiple meaning words. In both classrooms, the teachers discussed and were observed working on multiple meaning words. Specifically, multiple meaning words were discussed in the context of the same English word could be signed multiple ways. During the stimulated recall session, Alice and Lauren had an exchange that exemplified this aspect of instruction:

> Lauren: So we've been talking about how English words can have multiple meanings and how that applies to ASL. It started when … I had written the word fly, and I meant –what did I mean?
>
> Alice (signed response): bug.
>
> Lauren: 'the bug - the fly' and he said, 'well wait a minute, this is fly' (signed fly in the context of airplanes). So it started with that and it just popped up this week

> a couple of times, the word 'play' (play in the context of games) and play (in the context of acting). And they're really cute about it and they're just starting to understand that concept.

In the kindergarten classroom, after showing the children a video of their recent play, "Henny Penny", Kelsey asked them what new vocabulary they had learned for the play. One of the new signs was 'fall'. She went on the write the word on the board and then ask the children about the different ways the word fall could be signed. With some guidance the children came up with three options 'fall' (the sky is falling, classifier), 'fall' (the season), and 'fall' (fall down). The teacher went on to explain how the signs were written the same in English, but different in ASL.

The teachers also reported that register of language was also an important activity they used in the classroom to generate interest in the language and in signs. Lauren recalled that they spend

> quite a bit [of time] talking about register of sign language … In English there's all different kinds of registers, in print in spoken English, that kind of thing. And then the registers in ASL. The informalness you can have in ASL, the more formal you can have in ASL. We didn't really like analyze signs that much. But kind of just looking at as it like this too is a language and it has different ways it can be used.

The kindergarten teachers also reported focusing on conversational versus more formal ASL, by discussing the features of the language that are different when you talk with your friend across the table versus activities like presenting something to the class. These

strategies were considered essential to making explicit the different features and contexts of language and sign use so that children would be able to recognize these aspects of their own and others' communication.

Teachers went out of their way to focus on ASL as a distinct and interesting language, which included not only the features of ASL, but also the cultural connections, as well. One activity used to do this was through the use of classifiers and description,

> They love learning new ways to describe. One of the things we are working on in ASL is describing, someone will go hide and toy and they have to go find it. And then describe where they found it. And they're like, 'right there (points)' it was 'right there (points).' They love turning 'right there (points)' into real language. And it's exciting and motivating for them.

Another strategy that teachers used to address the unique aspects of ASL is through the use of ASL poems. These poems actually serve multiple purposes, as they are typically related to high interest items, but also work on ASL rhythm, location, and new signs. For example, a few of the teachers at the school got together to create a poem about a rooster and a hen hatching an egg. The signs rooster and hen use the same handshape in different locations and the egg provided an opportunity for the children to work on classifiers and description. The repetition also worked on ASL rhythm. In this one activity, there were three distinct ways that interest in the language and signs could be generated. As Lauren indicated these kinds of activities increased their motivation to learn signs, "They are eager to learn more. They love learning poems."

The language and culture connection was also a strategy the teachers used to promote interest in ASL and signs. In the kindergarten classroom, they had an activity posted on the wall. It was called, “The Deaf Flower.” The following story was posted along with children’s pictures illustrating the story:

> One day a girl planted seeds in three flower pots. Every morning, the girl sang a song to each pot. The flowers bloomed in the first two pots. The third pot remained empty. The girl was concerned. Then she thought maybe the third pot was deaf. So she decided to learn ASL and sign to the third pot every morning. The Deaf flower bloomed beautifully!

Furthermore, promoting interest in ASL as something connected to Deaf people, the teachers also noted that teaching language and culture could not be separated,

> You really can’t separate the two. A lot of the deaf cultural things that the students are picking up on is part of their language. So you tap someone on the shoulder to get their attention to sign with them - that’s a piece of communication right there. But we talk about deaf culture and we talk about respect. At the beginning of the year if we notice that there is something that could be captured related with deaf culture, we would capture it, but it kind of just naturally happens around it. I mean the kids had a vase and they were signing to each other and they couldn’t see each other, and then one of the kids moved it and that was a perfect opportunity to capture that piece of culture. I think culture like anything is pretty embedded in the language.

Through this stories like “The Deaf Flower” and ASL poetry dealing with Deaf culture and identity, the teachers reported that children were being exposed to higher-level language through a motivating topic. As Kelsey indicated, it’s motivating to them because, “it’s their culture, you know?”

Discussion

While the Graves (2006) Four-Part Vocabulary Program accounted for the nature of vocabulary instruction that occurred in these classrooms, each tier of this program was not represented equally. Providing Rich and Varied Experiences along with Promoting Word Consciousness were the two components of the framework represented the most within this study. Within each component of this framework, teacher decision-making included weighing multiple factors related to the Bransford et al. (2005) framework, as they considered the learners, curriculum, and teaching. Therefore, the remainder of this chapter will discuss how the instructional framework presented above connected to these three areas of teacher knowledge.

Knowledge of Learners

Knowledge of learners had a role in all aspects of the vocabulary instruction within these two classrooms. All teachers discussed the importance of addressing their children’s individual language levels, as deaf children often come to school at age three with varying levels of exposure to ASL vocabulary and ASL proficiency (Golding-Meadow & Mayberry, 2001; Kuntze, 1998; Marshark, 2007; Moeller & Schick, 2006; Chamerlain & Mayberry, 2008; Singleton & Supella, 2011). This heterogeneity of deaf children has been recognized by the larger field of deaf education as an important aspect

of the population currently being served in the schools (Easterbrooks, 2010; Marshark, 2007; Mitchell & Karchmer, 2011). As such, these teachers reported that the language levels of their children were an important aspect of their instructional strategy (knowledge of learners), as it was connected with their decisions to adopt a child directed approach to instruction (knowledge of teaching) and curricular philosophy (knowledge of curriculum) for their classrooms.

Beyond recognizing the diversity of the deaf children they teach, these teachers also demonstrated knowledge and practice around the language of ASL. Specifically, these teachers discussed the specific features and aspects of ASL that are important for deaf children to acquire. Classifiers are vocabulary unique to ASL and other sign languages, as these vocabulary do not have similar counterparts in English (Kantor, 1980; Schick, 2003). They rely upon handshapes, location, and movement to provide clarity and description for the interlocutor (DeBeuzeville, 2006; Schick 2003; Supella, 1986). While classifiers are important, they are also reported to be one of the hardest aspects of ASL to master, as it is possible for them to contain more than six ASL morphemes in a single classifier (Singleton, Morford, & Goldin-Meadow, 1993). Consequently, the teachers in this study devoted considerable time and effort in teaching and reinforcing classifiers within their classroom. As the non-native ASL users in this study recognized limitations in their own knowledge and skill base regarding classifiers, they sought external support for their teaching these vocabulary words. As such, they conferred with native language users, sought support from ASL specialists, and purposefully selected instructional activities designed to assist children with the acquisition of this skill.

ASL poems (Bahan, 2006) were one instructional activity utilized to support the acquisition of classifiers. ASL literature and poetry can be compelling, as "The unique visual and spatial properties of sign language make it a particularly rich medium for poetic image and metaphor" (Bauman & Murray, 2011, p. 219). In this study, these poems served the purpose of promoting the specific aspects of ASL. These poems taught the three important components of ASL phonology/cherology: the shape of the hand, the place that the hand is located, and the movement attached to the hand (Newport & Meier, 1985). They also conveyed information about ASL morphology, including the use of space and classifiers (Newport & Meier). Finally, they served to address multiple tiers of the Graves (2006, 2009) framework all within the same activity, combining their knowledge of ASL with their knowledge of teaching. Through addressing these three features, children were taught sign-learning strategies, as well as word consciousness (Graves, 2006).

Knowledge of Curriculum

Discussion of curricula and curricular philosophy was a prominent aspect of teachers' interviews and stimulated recall sessions. Teachers' knowledge of curricula connected to an understanding of the learners, and within the context of teacher experience, influenced teachers' decisions about their teaching. It is important to note that the discussion of curricular approaches did not include reference to any of the literature reviewed in Chapter 2 on research pertaining to curricula used with deaf children (*Reading Milestones*, *Reading Bridge*, *Edmark Reading Program*, *Fairview Reading Program*, or *Reading Recovery*). Instead the teachers discussed their journey toward and

eventual adoption of the Reggio Emilia approach, a curricular philosophy created for hearing children (Forman & Fyfe, 1998).

As mentioned previously, Reggio Emilia is not an actual curriculum; rather it is a set of guiding principles to create a rich learning environment in the classroom (Forman & Fyfe, 1998). At the core of this philosophy is the belief that children are valuable and competent. Consistent with the theories of Jean Piaget that focused on children as active learners that construct knowledge through exploration (Piaget, 1970), Reggio Emilia views children not as empty vessels waiting to learn, but as learners who can create shared understandings with peers and adults in the classroom (Martalock, 2012).

For the preschool teachers, the experience of failure was a dominating factor in their perceptions on the role of curriculum in the classroom. This is unsurprising, as the experience of failure is something that has been associated with high levels of stress and lack of teacher retention in the classroom (Kauffman, Moore Johnson, Kardos, Liu, & Peske, 2002). For the teachers in this study, the experience of failure was specifically associated with attempting to implement prescribed teacher-led curricula with their deaf students. This finding is consistent with other research on the pressure of fidelity to a prescribed curriculum being a factor in teachers' decisions to leave the profession (Achinstein & Ogawa, 2006). As a result, these teachers moved toward a curricular philosophy instead of an actual curriculum, as the guiding principle for their instruction.

The Reggio Emilia approach was also appealing because it resonated with the preexisting beliefs of the teachers. Teacher belief has been shown to be an important component of the educational system particularly in regard to teaching diverse learners

(Banks et al., 2005); however, the definition of teacher belief and how these beliefs are enacted in practice has been a debated topic in the field for decades (Kagan, 1992). Specifically, teacher belief is hard to capture, as many times it is an unconscious process that teachers are unable to articulate for others (Kagan). The teachers in this study did spend some time putting their beliefs into words, however, as they discussed how their own beliefs about children, and the competencies of children, played an important role in their affinity to the Reggio Emilia approach.

Another appeal of the Reggio Emilia philosophy was that it matched teachers' conceptions of their own identity as a professional in the field. Lasky (2005) defines teacher professional identity as, "how teachers define themselves to themselves and to others" (p. 901). As one teacher noted, the philosophy of Reggio Emilia was more compatible with how she viewed herself as an educator than the teacher-led approaches she had previously attempted, which fed into her decision to adopt the approach to her classroom.

As opposed to adopting a prescriptive curriculum, adopting a curricular philosophy was not an easy feat. Without a scripted daily plan for language learning, the teachers needed to establish learning goals, create lessons, and meet the daily needs of students through their own repertoire of established knowledge and strategy. The tension between meeting learning standards and following the child directed approach of Reggio Emilia was an important aspect of teacher reflection as they weighed the role of teacher efficiency versus teacher innovation within their practice (Hammerness et al., 2005). As a result, these teachers had to negotiate a balance between providing the children the

opportunity to develop independence in their language and cognitive skills, but at the same time ensuring that they were getting the most out of their instructional day.

In addition, the context of these classrooms occurred within the bilingual-bicultural approach to language at the school (Moores, 2010). This language philosophy aligns well with the Reggio Emilia approach, as Reggio is rooted in the socio-cultural perspective of Vygotsky (1978). Vygotsky argued that learning, including language learning, is a social process mediated by issues of culture. This perspective is consistent with theory on Deaf Culture, as Lane et al. (1996) indicated that ASL is integrally connected to Deaf values, Deaf customs, and disseminating cultural information, "ASL plays so many vital roles in the DEAF-WORLD, as a symbol of identity, medium of interaction, sources of values, customs and information, that it is impossible to imagine Deaf Culture without it, and it is painful to imagine a Deaf child without it" (p. 77).

While the evidence supporting the bilingual-bicultural approach for educating deaf students is unclear (Mayer & Akamatsu, 2011), the language philosophy could be seen through ASL-English connection present in these classrooms. As there is not a one-to-one correspondence in these languages, or one sign for every English word, promoting understanding of the two separate language structures was considered important for bilingualism in this context (Moores, 2010). Therefore, teachers engaged in word selection and instruction with the learning of both ASL and English in mind. For example, discussing multiple signs (meanings) for the same English word was a strategy seen in both classroom and discussed by all four teachers.

In order to address the bicultural aspect of this language philosophy, instructional activities and strategies were also selected with knowledge of both ASL and Deaf culture in mind. One role that the ASL poems served in these classrooms was to promote conceptions and understandings of Deaf identity and culture. A prime example of promoting the language-culture connection through ASL poetry was the example of, "The Deaf Flower." In this poem, there were two hearing flowers and a third flower that was Deaf. The Deaf flower required ASL to grow and blossom, just as Deaf children might thrive in an ASL rich environment.

The role of Deaf culture in the classroom could also be seen in the hearing teachers' deference to Deaf adults for knowledge of ASL. They relied on the ASL specialists to engage as a primary teacher of new signs. They also used the expertise of other Deaf adults at the school to assist them in selecting the 'best' way to sign a concept, as Lauren did with the sign for 'castle'. The idea that there are 'best' ways of signing something also illustrates the important of eloquence within the language, as Deaf people "valued individuals among themselves who were skilled, artistic, and creative with the language" (Padden & Humphries, 2005, p. 146).

The students even understood that ASL expertise is something possessed by Deaf people. A student challenged Lauren regarding the sign for success until a Deaf adult confirmed that she was correct in her sign. This is consistent with Deaf culture in that Deaf people, especially native ASL users, have authority over the language (Lane et al., 1996).

Knowledge of Teaching

Brandford et al. (2005) defines knowledge of teaching as an "understanding of **teaching** in the light of the content and learning to be taught as informed by assessment and supported by classroom environments" (p. 10). In regards to teaching vocabulary, the teachers in this investigation demonstrated a wide variety of teaching strategies related to instruction in their classroom. These strategies were consistent with the instructional framework of the Four-Part Vocabulary Program (Graves, 2006, 2009) and the qualitative-similarity hypothesis (Paul & Lee, 2010).

As the analysis showed, not all parts of this vocabulary program were represented equally within the data. Providing Rich and Varied Language Experiences and Promoting Word Consciousness were the two most prevalent (Graves, 2006). Teachers not only demonstrated a higher level of knowledge of these two components on the questionnaire, but they also discussed their teaching strategies in these two parts of the program in more depth. For the teachers in this study, creating rich and varied learning environments required active language experiences with materials that generate interest for the children.

The teaching of individual words and word-learning strategies were less represented in the data. The teachers reported that they do not engage in direct instruction, as they employ a child directed approach to learning. Although the teachers in this study seemed to find child directed approaches and direct instruction contradictory, Bransford, Derry, et al. (2005) report that employing a constructivist approach such Reggio Emilia, "does not imply that all learning should be discovery oriented and that direct instruction should always be avoided" (p. 53). Furthermore, this

finding might also be related to other misconceptions about what constitutes direct instruction of vocabulary words and word-learning strategies, as these teachers also had a higher number of incorrect responses on the teacher knowledge questionnaire for these two components of instruction. In contrast, Graves (2006) defines the teaching of words and word learning strategies as being most effective when embedded within rich discussion and through actively applying knowledge. This kind of rich vocabulary instruction embedded in larger language and cognitive experiences was observed in the classroom observations and through the stimulated recall sessions.

During the instruction of words, teachers were thoughtful about the types of signs to introduce and reinforce for the children, a key aspect of teaching individual words (Graves, 2006). These signs often took into consideration the unique aspects of ASL as a language distinct from English based on teachers' knowledge of the language of the learners in their classroom (i.e. classifiers). These signs also often considered other aspects of the learner including whether they to meet individual or social language needs (Vygotsky, 1978). In regards to teaching word-learning strategies, teaching ASL phonology/cherology, and ASL morphology were central to the instructional choices of the teachers in this study (Newport & Meier, 1985).

Teachers also demonstrated knowledge of pedagogy through their discussion of children's cognitive processing of a visual language like ASL. Jamieson (1994a; 1994b) found that deaf children process language in a sequential rather than a simultaneous manner, as they must shift visual focus to engage in language. These teachers demonstrated that this sequential processing of language impacts their decisions

regarding how to interact with their children during play. Rather than interrupting their thought process to engage in language, these teachers used technology to video the play interaction for the purpose of language exposure at the conclusion of the play activity. For the teachers in this study, by allowing the children to engage fully in the play and then address the language at a later time, the integrity of both sets of cognitive activities could be maintained. This is an important connection of knowledge of teaching with knowledge of curriculum and learners as, "Being learner-centered also involves an awareness of some basic cognitive processes that impact learning" (Bransford, Derry, et al., 2005, p. 57).

This finding is also consistent with documented language strategies employed by native language users. Research has shown that some hearing parents engage in more controlling language behaviors than their deaf counterparts (Lederberg & Prezbindowski, 2000; Musselman & Churchill, 1993). In this study, however, the teachers did not try to control the language interactions in the moment; rather they allowed the children to engage in language through sharing their own ideas and storytelling. In fact, Alice described in detail during both the interviews and stimulated recall, her profound dislike for the sign "look at me".

Teachers also discussed the role of attention in language processing for deaf children. As visual attention is a necessary prerequisite for deaf children to receive language input (Ackerman, et al., 1990; Swisher, 2000), teachers devoted time and energy into figuring out ways to engage the children's interest and maintain attention to the language being presented. One way that teachers addressed the need for attention was

also through the use of technology. The teachers in this study recognized that their children found ASL stories more compelling when viewed as a video, as opposed to a real “live” person signing a story. Consequently, they would use video of deaf adults signing stories, or video themselves signing stories as a means to get the children engaged with the language to a higher degree. While the teachers were unsure of exactly why this strategy worked, experience told them it was a viable tactic for teaching in their classrooms.

As previously noted, an essential aspect of knowledge of teaching is that this instruction is “informed by assessment” (Bransford et al., 2005, p. 10). While these teachers did not conduct formal or standardized assessment, they relied on their experiences and documentation of child performance to inform their instructional choices. These types of formative assessment practices are considered an essential to teaching, as teachers, “must have a deep understanding of the formative assessment process and understand its close relationship to instructional scaffolding” (Shepard, et al., 2005).

Scaffolding is a concept that promotes learning in the classroom through targeting children’s Zone of Proximal Development (ZPD; Vygotsky, 1978). The ZPD of a child "is the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p. 86). Through the use of pictures, notes, and video, the teachers tracked child progress and made decisions on when to “bump it [instruction] up” to the next level.

These decisions were not simple ones; however, as teachers found they needed to engage in reflection and discussion about the pedagogy employed in the classroom on a regular basis. These reflections were often seen posted on the walls as a means to remind teachers and other staff of the importance of thinking carefully about their practice and the relationship of their teaching to student success. Through the discussion, use, and reflection on formative assessment, the teachers were demonstrating the "knowledge-in-practice" needed to "deepen their own knowledge and expertise as makers of wise judgments and designers of rich learning interactions in the classroom" (Cochran-Smith & Lytle, 1999, p. 250).

Summary

This chapter has focused on the nature of the sign vocabulary instruction in two early childhood classrooms for deaf children. Beyond just examining ASL vocabulary instruction through the lens of the Four-Part Vocabulary Program (Graves, 2006), the data also suggests that within each component of the framework teachers integrate various knowledge sources to inform their instructional planning and active decision-making for teaching. These decisions are complex and evolving, or as Lauren put it a "work in progress." As such, teacher decision-making also required thoughtful reflection. Based on student performance and evaluated though documentation, instructional strategy was not viewed as a predetermined scope and sequence of activities. By viewing videos, notes, and pictures of children's work, these teachers not only thought about their instruction, but also changed it as needed. Sometimes these changes were predetermined during lesson planning, or they could occur in the moment of instruction, as teachers

found an opportunity to engage the children based on a need or interest. As Lauren indicated, the impromptu dance activity was an exemplar of promoting rich language through following an instructional opportunity that presented itself in the moment, “I just think that basically sums up our class. That they saw something, - it inspired them and they wanted to share it with the others. And get them all to come over and do it. And I think that they trust us in that we’re gonna let them do things that they want to do.”

CHAPTER FIVE

CONCLUSIONS AND IMPLICATIONS

The acquisition of vocabulary is an important aspect of young children's development that may impact their later literacy skills (National Reading Panel, 2000; Cunningham & Stanovitch, 1997). Deaf children who are American Sign Language users, however, often have smaller vocabularies and lower literacy levels than their hearing peers (Lederberg & Prezbindowski, & Spencer, 2001; Schirmer & McGough, 2005). Despite the importance of teaching vocabulary for young deaf children, there are very few investigations on this important topic (Luckner & Cooke, 2010).

This investigation set out to examine the following question: What is the nature of vocabulary instruction in early childhood classrooms for deaf children who have American Sign Language (ASL) as a primary language? In order to investigate this question, the knowledge and instruction of four TODs from two early childhood classrooms were examined. These teachers participated in a knowledge questionnaire, interviews, observations, and stimulated recall sessions. Findings indicated that teachers relied on child directed instruction as the foundation for instruction in their classrooms. Specific to vocabulary, teachers also discussed and engaged in practice related to the recommended instructional strategies promoted by the Four-Part Vocabulary Program (Graves, 2006, 2009). The four parts of this program were not all represented equally within these data, however, as Providing Rich and Varied Language Experiences and Promoting Word Consciousness were much more prevalent in both knowledge and practice than Teaching Individual Words and Teaching Word Learning Strategies.

While this investigation set out to examine specific teachers and their instruction, the context for this investigation was situated within conceptions of teacher knowledge and practice. Bransford et al. (2005) created a framework for examining teacher practice that included three concepts: knowledge of learners, knowledge of curriculum, and knowledge of pedagogy. As such, within each component of the Four-Part Vocabulary Program (2006, 2009), teachers discussed aspects of their practice that related to the three elements of the Bransford et al. framework. As a result, there was interplay of teacher knowledge about learners, curricula, and pedagogy that informed their instructional planning and decision-making.

In regard to learners, teachers focused on the knowledge of the heterogeneous nature of deaf children in schools and the specific features of ASL. For curriculum, teachers relied on their knowledge of curricular philosophy, the language philosophy of the school, and the language to culture connections. In regard to pedagogy, teachers were well versed in discussing creating rich language environments for deaf children, developing interest in language and vocabulary; however, they demonstrated a less developed knowledge base on teaching individual words and teaching word-learning strategies. Finally, these teachers also incorporated teaching strategies that addressed the unique language processing of deaf children learning a visual language.

Through examination of teacher knowledge, practice and decision-making, important considerations regarding how teachers might weigh their instructional decisions about what to teach and how to teach new ASL vocabulary may be seen; however, as this is a small descriptive study, generalizations cannot be made. Therefore,

potential implications for the field of deaf education, and future research on this topic will be addressed, followed by a discussion of the limitations of this research.

Implications for Practice

The findings and discussion of results of this study suggest six broad implications of this study for the larger field. It is important to note that this study is small in scope and, therefore, the implications must be viewed with this understanding. Based on the factors these teachers considered during instruction, the first implication is the importance of considering learners, curricula, and teaching when engaging in vocabulary instruction. This finding is consistent with the conceptual framework of Bransford and his colleagues (2005). As such, teachers need to engage in pedagogical content knowledge that extends knowledge of one specific discipline (Shulman, 1987) and to the larger interplay of factors that affect the learners and classroom context.

Within each component of the Four-Part Vocabulary Program (Graves, 2006, 2009), teachers' knowledge of learners, curricula, and pedagogy interacted in during decision-making and instructional practice. As a result, this study supports the conception of teachers as active agents engaging in a complex process of vocabulary instruction, changing their instructional practice to meet the needs of the children in their classrooms based on their knowledge and experience. Through this process, the importance of developing "adaptive expertise", or the ability of teachers to be flexible, learn from their experiences and restructure their core beliefs as they grow as professionals could be seen (Bransford, Derry, et al., 2005).

Second, the teachers in this study illustrated that ASL vocabulary instruction is one part of a larger language learning process, benefiting from instruction embedded in rich discussion and robust language modeling. These teachers viewed vocabulary instruction as promoted through rich discussion designed to target all areas of language development and growth. As such, one of the most prevalent components of the Four-Part Vocabulary Program (Graves, 2006) was Providing Rich and Varied Language Experiences. This tier of the program views vocabulary instruction as an embedded in complex and thoughtful language practices. For young learners, it emphasizes vocabulary exposure through rich discussion, shared reading, and exposure to new vocabulary (Graves 2009).

Deaf children often come to school with varying language experiences in the home, resulting in a wide range of language competencies at school entry (Chamberlain & Mayberry, 2008; Easterbrooks, 2010; Goldin-Meadow & Mayberry, 2001; Knoors & Hermans, 2010; Kuntze, 1998; Marshark, 2007; Moeller & Schick, 2003; Singleton & Supella, 2011). Due to these large differences in deaf children's language skills at school entry, it is important that deaf children have strong language experiences have to promote the development of vocabulary. This perspective is consistent with previous studies indicating that deaf children benefit through exposure to strong language models through the use of ASL stories told by a fluent signer (Cannon, Frederick, & Easterbrooks, 2010; Golos, 2010; Mueller & Hurting, 2010). Therefore, it may be that strategies related to providing rich language input for children, including providing complex learning

experiences, teacher modeling, and student modeling, are especially important for young deaf learners.

Third, although ASL vocabulary instruction is part of a larger language learning landscape, the teachers in this study took care in selecting signs and creating activities to address individual signs, indicating that ASL vocabulary instruction should also be viewed as a distinct learning process. Although the teachers in this study appeared to equate direct instruction with teacher-led instruction, they actually participated in the types of direct instruction that the Graves framework (2006, 2009) promotes. In fact, Graves (2006) indicates that teaching individual words should include a focus on instruction that is "rich, deep, and extended" (p. 6). The teachers in this study leveraged active learning experiences to go beyond exposing children to signs or pictures of words and engaged them in extended conversational interactions ripe with context and content. Therefore, it appears that while this process does not need to occur within a separate teacher-led instructional time, targeted instruction on vocabulary is an essential part of the language curriculum of classrooms for deaf children learning ASL.

Fourth, the teachers in this study illustrated the value of engaging children's thoughts, interests, and language in the classroom as an important consideration in promoting vocabulary development. The teachers in this study embedded their vocabulary teaching in the broader construct of child directed instruction, a type of instructional philosophy influenced by the work of Dewey (1902), Piaget (1970) and Vygotsky (1978). In this approach, children's interests and thoughts are used as a starting point for engaging them in hand-on learning meaningful to them. Specifically, this

philosophy appeared to impact vocabulary instruction through the promotion of word consciousness and language consciousness (Graves, 2006). Teachers in this study utilized conversational topics and activities meaningful to the children in order to garner their participation in language experiences and to develop their interest in signs and language. Therefore, the findings of this study support the idea that child directed activities can leverage children's interests to get them excited about learning more vocabulary and language in the classroom.

Fifth, within the framework of the Four-Part Vocabulary Program (Graves, 2006), ASL vocabulary instruction in this study required qualitatively different language strategies to accommodate for the visual nature of the language. This study demonstrated specific vocabulary instruction designed to target the unique features of the language. These strategies addressed ASL phonology/cherology and morphology (Newport & Meier, 1985), including classifiers, a type of vocabulary non-existent in English (Kantor, 1980; Schick, 2003). In addition, through ASL poetry (Bahan, 2006), children were exposed to important features of language and culture (Lane, et al., 1996).

The use of video to account for the sequential processing of a visual language was another essential language strategy used to address the needs of deaf children (Jamieson, 1994a, 1994b). Through the use of technology as a visual strategy to assist children in acquiring language (Easterbrooks, 2010), children were able to engage their brain fully in a play activity and later work with a teacher to build out language that relates to their thoughts. The Story Workshop series was a prime example of utilizing video to develop thoughts into more advanced language experiences.

Given the unique language strategies necessary for teaching ASL vocabulary in this study, one important implication of this study is regarding the level of support that schools can provide their teachers. The teachers in this study were fortunate to have native language users and ASL specialists available to support their language practices specific to ASL instruction. Children not only received direct services in ASL, but teachers were able to consult experts for ways to enrich their own ASL instruction. This level of support was perceived as impacting the quality of education for these children; however, there are many TODs that do not have this kind of support service. Therefore, it is important for school systems to put in place resources and specialists with the expert knowledge on the unique aspects of instruction of ASL for young deaf children when able.

Finally, the teachers' documentation processes indicated that evidence generated through teacher practice (knowledge-in-practice and knowledge-of-practice; Cochran-Smith and Lytle, 1999) was an important aspect of evidence-based decision-making in these classrooms. The nature of vocabulary instruction within these two classrooms for young deaf children was one that demonstrated the application of teacher knowledge in a complex and evolving environment for diverse learners. While teachers discussed a variety of factors influencing their instructional choices, they focused heavily on issues surrounding philosophy and belief about children, teaching, and education for young learners. On the surface, when examining the data within this study, it may seem that these teachers engaged in a heavily belief-driven focus during their instruction. This has been a problem for the field, as belief-driven approaches have traditionally overshadowed

evidence-driven approaches to deaf education (Easterbrooks, 2010). Even I, as the researcher, became concerned during the first round of interviews that this line of inquiry might be reinforcing the same questions that the field of deaf education that has dominated last century, including those related to the historical and sociopolitical "methods controversy" (Moores, 2001, p.6).

As the study progressed, however, it became apparent that teacher instruction and decision-making were far more complex than just the adoption of a particular language or curricular philosophy. Teacher experience was, in fact, one of the most important aspects of their practice. Not only did these experiences assist in making determinations about instructional practice, these experiences also helped shape teacher belief about their own practice. Therefore, "knowledge-in-practice" that "emphasizes how teachers invent knowledge in the midst of action, making wise choices and creating rich learning opportunities" was a prominent aspect of teacher practice within the results (Cochran-Smith, & Lytle, 1999, p. 276).

In particular, the role of failure in teacher decision-making was profound. This was particularly salient when the teachers discussed their experience with teacher-led curricula and the student's responses. Even so, whether this failure was related to specific curricula, activities, or individual children, these teachers recalled vividly when approaches to instruction did not work for them. Repeated failure using prescribed curricula resulted in teachers shifting their philosophy regarding the nature of instruction and the role of philosophy in their classrooms.

One key aspect of navigating conceptions of success and failure for these teachers was documentation. As Lauren mentioned, documentation served a duality of purpose, as guiding instructional strategy (Vygotsky, 1978) and as a measure of teacher accountability. By using pictures, video, and notes about the children's language levels, teachers were able to truly engage in an "assessment-centered" approach that requires that assessments mirror and adapt to the teaching and learning goals at hand (Bransford, Derry, et al., 2005). In this perspective, formative assessment of child performance that guides instructional practice should be an important role of evidence in the classroom (Bransford, Derry, et al.).

This type of evidence-based decision-making is different from the application of the 'gold standard' of scientifically-based research discussed in Scientific Research in Education report (SRC; Shavelson & Towne, 2002) that has dominated the discourses of educational research in recent years. The types of evidence reflected in the SRC report come from notions of "scientific rigor and quality" (Easterbrooks, 2010, p. 115). Instead, these teachers demonstrated some consistencies with the early evolution toward an "inquiry stance" aimed at systematic "interrogation an interpretation" to generate "knowledge-of-practice" within the context of larger inquiry communities. In this context, evidence is generated through the collaborative teaching process that allowed for co-construction of knowledge through reflecting together on the issues of learning and instruction in the classroom context. As a result, when accounting for the role of teacher experience and documentation, it seems that while belief played a large role in instructional choices, so did the types of evidence that are consistent with a child-

centered constructivist approach to education. Therefore, it is important to value multiple evidence sources and methods for engaging in evidence-based practices in the classroom.

Implications for Future Research

The frameworks used to describe and interpret the nature of vocabulary instruction in these classrooms suggest six implications for future research. First, as this study examines vocabulary instruction within the context of a very specific learning environment, child directed and bilingual-bicultural, it would be interesting to replicate this study it other types of educational settings, as well. Different settings may mean different teacher experiences resulting in diverse philosophies and approaches to teaching new ASL signs to young deaf children.

Second, this investigation views teaching in absence of student learning. Therefore, one future line of inquiry would be to connect the types of knowledge teachers possess and the strategies that teachers use to the vocabulary outcomes of children in the classrooms. These studies could examine the qualitative aspects of children's expressive language as they engage in discussion and activity over the course of a year. Quantitative or mixed methods studies examining the nature of instruction and connecting it to the acquisition of vocabulary, including classifiers, would also add an important piece of the puzzle, as well.

Furthermore, this study takes as an assumption that by targeting ASL vocabulary as an area of instruction, that children will have increased ability to engage in later literacy activities. This assumption is based on other research that indicates that stronger ASL skills are connected with higher levels of literacy (i.e. Kyle & Harris, 2006; LaSasso

& Davey, 1987; Paul, 1996). Therefore, longitudinal investigations that examine the role of ASL vocabulary in particular to later literacy acquisition would be a benefit to the field of deaf education, to validate assumptions like this one.

Of particular interest to this researcher, investigations into the role of technology in addressing the specific language processing needs of young deaf children could produce new approaches to building both language and cognition in deaf children. The teachers in this study leveraged technology through Story Workshop in a way that promotes expressive language and story telling skills. As such, an investigation of this instructional activity as a means to increase both language and cognition would be particularly compelling.

Given that the Four-Part Vocabulary Program (Graves 2006) demonstrated potential for describing and promoting a comprehensive instructional approach for vocabulary in this study, future research could move beyond what teachers currently do and try to impact their practice through professional development or intervention. Therefore, a study that develops and tests a professional development series or targeted student intervention regarding ASL vocabulary instruction within the Graves (2006) framework might be beneficial to the field. This is especially important given the misconceptions regarding direct instruction and the role of larger sign learning strategies such as those associated with ASL cherology/phonology in the vocabulary learning process.

Fifth, stimulated recall was an essential part of understanding the teacher thought process in this study. By engaging in the ‘think aloud’ process while watching their own

instruction, it was possible to see when aspects of vocabulary instruction (i.e. Teaching Individual Words) were present even when the teachers reported a lack of those strategies in their classroom. Without the use of stimulated recall, certain findings from this study would not have been uncovered. Therefore, this research reinforces the idea that stimulated recall can be a useful research tool for understanding underlying cognitive processes in education and social sciences research (Lyle, 2003).

Finally, this study examined a robust set of factors that influenced teacher practice including knowledge of learners, curricula, and teaching (Bransford, et al., 2005). It suggested that these teachers particularly relied on experience in decision-making regarding their instruction. Further investigation into how teachers assimilate their experiences into their repertoire would be interesting to explore. Specifically, it would intriguing to examine the role of experience and evidence in informing practice and moving teachers forward toward become "adaptive experts" progress past relying on "knowledge-in-practice" to fully developing an inquiry stance through "knowledge-of-practice" (Cochran-Smith & Lytle, 1999).

Limitations

A major limitation of this study is the generalizability of the findings. This investigation included only four teachers from two classrooms in one school as the basis for findings and discussion. This particular investigation required a more in-depth understanding of the many factors affecting vocabulary instruction in these classrooms; however, given that context and teacher experience were so instrumental in describing and interpreting results, the findings here cannot be applied to all classrooms or TODs.

Furthermore, the results of this study are specific to those deaf children that use ASL. The increasing heterogeneity of the deaf population requires educators to understand that multiple options will be needed to support the vast array of individual children served in schools (Easterbrooks, 2010). As a result, the findings of this study do not address the needs of children who may be able to access enough auditory information to use it to acquire literacy.

In addition, while this investigation set out to investigate what the nature of instruction was in these classrooms through a descriptive study, it did not examine the effect of these instructional strategies on the children's language or early literacy levels. As a result it is possible to know what strategies teachers employed and what knowledge bases came to bear on teacher practice, it was not possible to examine how these strategies related to child learning within the context of the classroom.

Conclusion

This study examined the nature of vocabulary instruction by four early childhood teachers of deaf children (TODs) from two classrooms through a qualitative collective case study. Findings indicated that the Four-Part Vocabulary Program (Graves, 2006) could account for the nature of vocabulary in these classrooms; however, within this framework TODs used qualitatively different language strategies to address the unique aspects of teaching a visual language. Furthermore, there was interplay of teacher knowledge about learners, curricula, and pedagogy that informed their instructional planning and decision-making. The complex nature of teaching was showcased through their reflective process using documentation and experiences to guide their practice and

to ensure that their children were growing, progressing, and perceiving themselves as "competent … as person and a learner."

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APPENDICES

Appendix A
Teacher Background and Knowledge Questionnaire

Population: Early Childhood Teachers in Classrooms for Deaf Children

Procedure: Teachers will be given this questionnaire prior to doing interviews, classroom observations, and stimulated recall sessions.

Section 1: Background

1. How many years, in total, have you been a professional educator (please count the 2012-2013 school year as an entire year)? _____Years

2. Which of the following grades have you taught and for how many years (Please count the 2012-2013 school year as an entire year and enter a 0 for those grades you have not taught)?

Pre-kindergarten		Years	Sixth grade		Years
Kindergarten		Years	Seventh grade		Years
First grade		Years	Eighth grade		Years
Second grade		Years	Ninth grade		Years
Third grade		Years	Tenth grade		Years
Fourth grade		Years	Eleventh grade		Years
Fifth grade		Years	Twelfth grade		Years

4. What is your highest degree as of May, 2012 (choose one response):
- ◯ Associate's degree
- ◯ Bachelor's degree
- ◯ Master's degree
- ◯ Doctoral degree
- ◯ Not yet certified

4. Which of the following teaching certifications do you currently hold?
- ◯ Regular classroom teacher certification
- ◯ A bilingual certification emphasizing primary language instruction for ELLs
- ◯ An English as a second language (ESL) certification emphasizing English instruction for ELLs
- ◯ Content area certification- please specify content area(s):_____
- ◯ Early Childhood Education (ECE)
- ◯ Child Development Associate (CDA)
- ◯ Master Reading Teacher (MRT)
- ◯ Special Education certification
- ◯ Deaf Education certification

◯ Temporary or Provisional certification (i.e., emergency certification, intern, etc.)
◯ Not yet certified

5. In the past five years have you had any in-service training specifically related to vocabulary development and instruction?

◯ Yes ◯ No (if yes, complete the next two questions)

a. Approximately how many hours of in-service training have you received in the past five years?

☐☐☐ hours (please provide your best estimate)

b. What was the focus of the training (select all that apply)?

◯ General vocabulary development and vocabulary instruction
◯ Vocabulary development and instruction for deaf and hard of hearing learners
◯ Other: _____

6. Do you use a published language arts program?

◯ Yes ◯ No

1. If yes, what is the name of the program?

_____

b. Does this program include vocabulary instruction?

◯ Yes ◯ No

7. Do you use any additional materials to address the vocabulary needs of your students?

◯ Yes ◯ No

If yes, please briefly describe the materials:

_____
_____
_____
_____

For questions 8-11, please rate your knowledge and experience on the following topics, where 1 indicates limited knowledge and experience and 5 indicates extensive knowledge and experience.

8. How would you rate your knowledge of vocabulary development generally?

1 2 3 4 5

9. How would you rate your knowledge of vocabulary development in deaf and hard of hearing learners?

1 2 3 4 5

10. How would you rate your knowledge of vocabulary instruction generally?

1 2 3 4 5

11. How would you rate your knowledge of vocabulary instruction for deaf and hard of hearing children?

1 2 3 4 5

Section 2: Vocabulary Knowledge Survey

Teacher Vocabulary Survey

Part 1: Vocabulary Development for Native English-Speaking Hearing Children

Read the following statements about vocabulary development. Then using your classroom expertise and research-based knowledge, choose one of the following options: true, false, or "I don't know".

	True	False	I don't know
a. People have a larger receptive vocabulary than they use productively	○	○	○
b. The English language includes more words that appear frequently than words that appear infrequently	○	○	○
c. Each person has a range of knowledge about each word in his or her vocabulary	○	○	○
d. Polysemy refers to the fact that many words have multiple meanings	○	○	○
e. Receptive vocabulary are the word that people use when speaking	○	○	○
f. College or career-ready students have a vocabulary of approximately 5,000	○	○	○

	words when they graduate from high school			
g.	**Average students' vocabulary knowledge is made up primarily of word they have been directly taught**	○	○	○
h.	**Students with strong reading comprehension tend to be able to context for learning vocabulary**	○	○	○
i.	**Students who test poorly in reading comprehension tend to have small vocabularies**	○	○	○
j.	**Children with larger vocabularies tend to learn more vocabulary incidentally than those with smaller vocabularies**	○	○	○
k.	**Research studies show that vocabulary learning has little effect on reading comprehension**	○	○	○

Teacher Vocabulary Survey

Part 2: Vocabulary Instruction for Native English-Speaking Hearing Children

Read the following statements about vocabulary instruction. Then using your classroom expertise and research-based knowledge, choose one of the following options: true, false, or "I don't know".

		True	False	I don't know
a.	**Vocabulary can be acquired through incidental exposure**	○	○	○
b.	**Newspapers and magazines are appropriate for classroom libraries**	○	○	○
c.	**Research shows that the use of dialogic reading has little effect on the language development of preschool children**	○	○	○
d.	**Interactive shared reading actively involves students through ongoing questions about the text**	○	○	○
e.	**During the grades K-2, most new words that native English-speaking children learn come through independent reading**	○	○	○
f.	**Building a basic oral vocabulary of the most frequent English words is important for native English-speakers**	○	○	○
g.	**Teaching individual words is ineffective for teaching students' comprehension**	○	○	○

	of text selections containing those words			
h.	**There is no relationship between instruction in individual words and the quality of students' written communication skills**	○	○	○
i.	**Students can generally identify words that they do not know from a text that they are reading**	○	○	○
j.	**Words that are important to understanding the reading selection in which they appear are potential candidates for direct instruction**	○	○	○
k.	**The more frequently a word appears in materials students read, the more important it is for them to know the word**	○	○	○
l.	**The more frequently a word appears in materials students read, the greater the chances a student will retain the word once it is taught.**	○	○	○
m.	**Students benefit from vocabulary instruction that incorporates both definitional and contextual information**	○	○	○
n.	**Students benefit from vocabulary instruction that activates their background knowledge**	○	○	○
o.	**Effective instruction in word learning strategies should include ongoing classroom activities that incorporate opportunities to use that strategy**	○	○	○
p.	**Using dictionaries and reference tools effectively helps students to acquire vocabulary**	○	○	○
q.	**Students rarely have difficulty in using the dictionary to define unknown words**	○	○	○
r.	**A useful strategy for students to figure out unknown words is the use of word parts**	○	○	○
s.		○	○	○
t.	**Word consciousness refers to metacognition about words, motivation to learn words, and deep and lasting interest in words**	○	○	○
u.	**Motivation is an important component to learning vocabulary**	○	○	○
v.	**Metalinguistic awareness is the ability to understand two or more languages**	○	○	○
w.	**Children's literature that includes inventive uses of words should be reserved for strong readers**	○	○	○

x.	A single instance of a word in context is often sufficient to reveal its full meaning	○	○	○

Teacher Vocabulary Survey
Part 3: ASL Vocabulary Development for Deaf and Hard of Hearing Children

		True	False	I don't know
a.	American Sign Language is not a fully grammaticized language	○	○	○
b.	American Sign Language has hand features that are comparable units to English phonology	○	○	○
c.	Deaf children of deaf parents demonstrate signs on par, if not earlier, than their hearing counterparts of hearing parents	○	○	○
d.	Deaf children as a group tend to fall behind their hearing peers by age 30 months of age on measures of language development	○	○	○
e.	The underlying cognitive processes of vocabulary development are not the same for deaf and hearing children	○	○	○

Teacher Vocabulary Survey
Part 4: Vocabulary Instruction for Deaf and Hard of Hearing Children

		True	False	I don't know
a.	It is not important for deaf readers to relate experiences of their own to the characters and events in the stories they are reading	○	○	○
b.	A common strategy used by deaf adults reading to deaf children is to adjust the placement of signs to maintain interest and variety	○	○	○
c.	Research shows that it is important for book reading to be parent or teacher driven rather than following the child's lead	○	○	○
d.	Deaf parents wait for their children to look at them before initiating a new sign	○	○	○
e.	Increasing the repetitions of a new sign's movement is a strategy native	○	○	○

	signers use to provide increased access to the sign for a young deaf child			
f.	**Moving a sign into a child's line of sight does not facilitate the child's ability to learn the sign**			
g.	**Deaf readers only keep language visible (ASL or English) while reading books to their children**			
h.	**Hearing parents of deaf children provide language sequentially to their children, waiting for them to finish looking at an object before making a comment about it**			
i.	**Research suggests that parents and teachers need not be obsessively concerned about knowing each and every word within the text, but should place higher priority on conveying the story**			
j.	**Using fingerspelling with very young deaf children is not something that deaf parents do with their children**			
k.	**Through each new reading of a story, a skilled deaf reader's signing comes closer and closer to the actual text**			
l.	**Research shows that deaf readers sign repetitive English phrases the exact same way every time**			
m.	**When a deaf reader signs a story, she/he emphasizes ideas in a story that are not directly stated in the text, but are clearly implied**			
n.	**Research shows deaf readers adjust their signing style to bring characters to life**			

Appendix B
Interview Protocol

Population: Early Childhood Teachers in Classrooms for Deaf Children

Analysis Procedure: Interview will be videotaped to ensure all use of visual language is recorded to maintain the integrity of the language. Coding will be done within video software that allows for directly coding onto the video.

Hi. My name is Lianna. Thank you for participating in this research study. Today I'd like to discuss with you your background and experience in teaching ASL vocabulary to the young deaf children in your classroom. I will be using the information you provide today

to help better understand the nature of sign vocabulary instruction in classrooms for the deaf and hard of hearing. First I am going to ask you a few questions about your education and background, then I will move on to asking questions about your classroom instruction.

Background:

1. Where are you from?

2. Tell me about your experience learning American Sign Language.
   Probe: When did you learn American Sign Language? Was it easy, hard, etc.?

3. Why did you go into teaching?
   Probe: Did you go into teaching specifically to work with deaf and hard of hearing children?

4. Where did you study to become a teacher?
   Probe: Was it a program designed specifically to prepare you to teach deaf and hard of hearing children?

5. Did your training include a focus on language development?
   Probes: For deaf and hard of hearing children specifically? If so, what did that training consist of? How much training did you receive?

6. Did your training focus on vocabulary development?
   Probes: If so, what did the training consist of? How much training did you receive?

7. How long have you been teaching?
   Probe: Roughly how many children would you say you have taught over the years?

8. What types of settings have you taught in?
   Probe: For example, general education, special education, inclusion, schools for the deaf?

Your School:

9. What educational setting are you teaching in right now?
10. Does your school have a documented language philosophy governing classroom instruction?
    Probes: If so, what do you feel about that policy? Do you believe in it or do you have different beliefs?

11. How would you describe your communication style in the classroom?

12. How would you describe your students' language needs in the classroom?

13. If you could describe the perfect language environment for your students, what would it look like?

14. Is there anyone else that works with your children on ASL vocabulary development?
    Probe: If so, who? What types of services does she/he provide?

15. What kind of supports does your school have in place to assist you in teaching vocabulary to your students?
    Probe: What supports do you wish you would have?

Pedagogy:

16. What are some of the biggest challenges your students face learning language in your classroom?

17. What do you do to meet these challenges?

18. How do you think young deaf and hard of hearing students feel about learning ASL at school?

19. Specifically, what kinds of strategies do you use to teach ASL vocabulary in your classroom?
    Probes: Do you focus on a rich language environment, engage in direct instruction, etc.? Would you say that these strategies are similar or different from those employed with hearing children? How so?

20. Can you give me some examples of strategies you employ in your classroom?

21. Do your strategies differ for different students?
    Probe: What factors do you consider when adapting your strategies?

22. How do you determine what strategies students need for sign vocabulary instruction?
    Probe: Can you give me some examples of the types of decision-making in which you engage when introducing new signs?

23. Tell me about some of your biggest successes in teaching new vocabulary to your students?

24. What are some of the biggest challenges you have faced in teaching new signs to young deaf and hard of hearing children?

25. What would you say that teachers of young deaf and hard of hearing children need to know about teaching new vocabulary to their students?
    Probe: What kinds of advice would you give a student teacher on this topic? Have your thoughts on this topic changed over time?

26. Are there other teachers in the school who you think are effective at working with deaf and hard of hearing children?
    Probe: Why do you think they are effective?

Home Learning Connection:

27. What is your relationship with the parents of your students?
    Probes: do you communicate with them? If so, how often? Do they use sign at home?

Concluding Thoughts:

28. What else do you feel is important to know about your work with deaf and hard of hearing students?

29. Are there other things you would like to add?

Appendix C
Stimulated Recall Session Protocol

Population: Early Childhood Teachers in Classrooms for Deaf Children

Analysis Procedure: Recall Session will be videotaped to ensure all use of visual language is recorded to maintain the integrity of the language. Coding will be done within video software that allows for directly coding onto the video.

Today we are going to watch some segments of the lessons we recorded for this study. First we will review a part of the lesson that you felt went particularly well. Then we will review another segment of the lesson that I have selected. Do you have any questions? Let's get started.

To start the researcher will provide a general overview of the video components and give the teacher a few moments to decide what section of the video will be watched. The following questions will then be used to introduce the background of the lesson and guide the recall.

Segments (Repeated as Necessary)

Introduction:

1. Why did you choose this segment of the lesson?

2. What were your goals for the lesson?

3. Was this part of a predetermined curriculum or did you create the lesson on your own? What about the materials used to teach it?

Recall:

4. Can you tell me what you were thinking when you began this part of the lesson?
   Probes to use if recall stalls:
   a. What was the procedure you were going through in your mind?
   b. What decisions did you make at this point in the lesson if any?
   c. What factors are you considering right now?

Conclusion:

5. Did you feel the students learned the new vocabulary you introduced?
   Probes:
   a. How do you know?
   b. What follow up procedures will you use to know what they learned, if any?

6. What were the best parts of this lesson in your opinion?

7. What were the challenges in teaching this lesson for you?

8. If you were to do anything differently next time, what would it be?

Thanks again for your time today!